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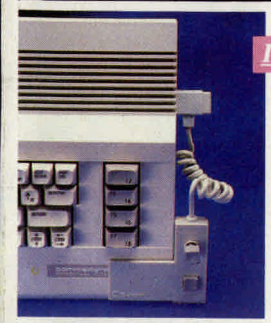
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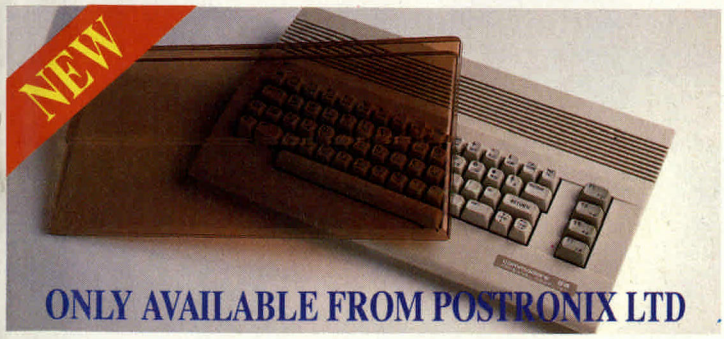
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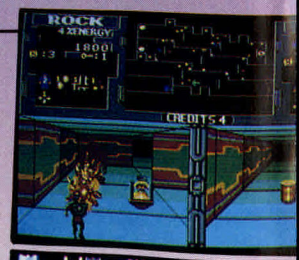
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THE AMIGA DIMENSION

I sometimes ask myself what computers are for. They are pretty stupid things – at least the way they work today. Even Super Computers such as the Cray cannot learn from their own experiences as humans can. That is why neural networks are being built so that computers can attempt to imitate the way that our brains work.

But you cannot blame the computer. An Amiga can do some sensational things, as can many computers. What is wrong is the lack of human imagination that limits the computer. That is why it is so rewarding to see the Hypercard concept emerge on the Amiga, as reported from the Chicago AmiExpo.

A new product, Ultracard, was shown here which offers the same creative approach that has made "hyper" the latest buzzword for the Apple Macintosh. The linear process that makes present day computing so often frustrating does not lend itself to the kind of associative thinking that is usual in human intelligence. We think by jumps in all directions, associating freely rather than along the straight lines that we have forced computers to travel along. Computers with their outstanding ability to calculate and over huge areas could offer enormous advantages when properly allied to our flexible imaginations. It is precisely this exciting combination that is being exhibited in the Mac Hypercard, in which new applications are emerging all the time. With a computer which most of us, rightly or wrongly, feel is superior to the Mac, Hypercard-style addition should multiply substantially the stimulation that the Amiga can offer, which brings me back to what a computer is for.

Of course, there are many professional uses where computers are today indispensable, in such as huge number crunching activities, for example. But for most of us, apart from maybe word-processing, as in writing these words, or applications like video where the Amiga is making a real impact, computers like the Amiga are really more for our entertainment, the stimulation of our minds and our imaginations than life or death necessities.

That does not make them unimportant. In fact activities from which we do not gain our living are, other than in exceptional circumstances, very often more important to us than anything else. They are the areas in which we choose to be rather than are forced to be. The Amiga user who adds 512K to upgrade his Amiga may well feel he is enhancing his life by enabling his computer to run bigger and better applications. He gazes with envy on the hard drive of his friend and promises himself that when memory prices come down a bit more he'll treat himself to a hard card with another Meg or two.

However, with every aspect of his computing, the user is thinking about his interest, growing it, developing it. As someone said to me the other day "Not many Amigas are not being used." The Amiga, just four years old this month, is still young enough for every one that has been bought still to be in operation. Each one is provoking and stimulating the mind of its user. With additions like the Ultracard we may see the Amiga turn even more to a stimulus for our imaginations. "I think, therefore I am", said Descartes. Perhaps what computers will come to be is to make us use our imaginations, to be more creative. An adaptation of the Cartesian declaration might turn out to be "I am an Amiga User, therefore I create." Even if they say we are just "playing", they could be right. But there are many worse things that anyone could be doing. For 'play' is where the imagination has free or freer rein. I think that's what computers are really for.

Antony H. Jacobson
Managing Editor and Publisher

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NEWSFILE

Prevent Hard Disk Failures

Results of a new United States Air Force study showed that Prime Solutions' *Disk Technician Advanced (DTA)* software eliminated PC hard drive failures. The study also destroyed the myth of PC reliability, according to Steve Luster, company spokesman.

An analysis of 210 new PC systems conducted by the Air Force Inspection & Safety Center, Office of Computer Systems, Norton Air Force Base, revealed that 63 of the machines required maintenance, 33% of the maintenance calls were for hard disk problems. The average down time was 3.6 days.

***DTA* was then installed on the same 210 machines. The study showed a 100 percent drop in hard disk-related maintenance calls. There have been no hard disk failures since *DTA* was installed.**

Although alarmingly high, the Air Force hard disk failure figures did not include the common major failures of lost or corrupted files requiring user reformatting of drives. "Most PC users do not relate these everyday problems to hard drives," said Luster. "The widespread, entrenched belief is that seeing DOS error messages and occasional lost files are perfectly normal occurrences. If they were reported, the failure rate would be 100 percent."

Nor did the figures include lost productivity, unusable worker time, and data recovery and reconstruction. "These associated costs are usually hidden, but they're very real and staggeringly expensive to the military, government and business," said Luster.

***DTA* is the world's only software able to predict, repair and prevent the problems that cause costly file damage and loss, before it happens. *DTA* finds and fixes all data-threatening conditions, recovers damaged or missing data, even warns of imminent hardware failure. The non-copy protected, US $189.95-list software package is designed to work on IBM PC, XT, AT, PS/2 and true clones. It also includes a free, US $49.95 RAM-resident program that shields data against harm from power problems.**

No technical skills whatsoever are needed. *DTA* runs automatically and unattended. There is no need to remove and reinstall files and programs. "Anyone who can press the ENTER key is an instant expert," said Luster. Prime Solutions Inc; 1940 Garnet Avenue, San Diego, CA 92109 (USA). Tel: (619) 274-5000.

Battle Valley

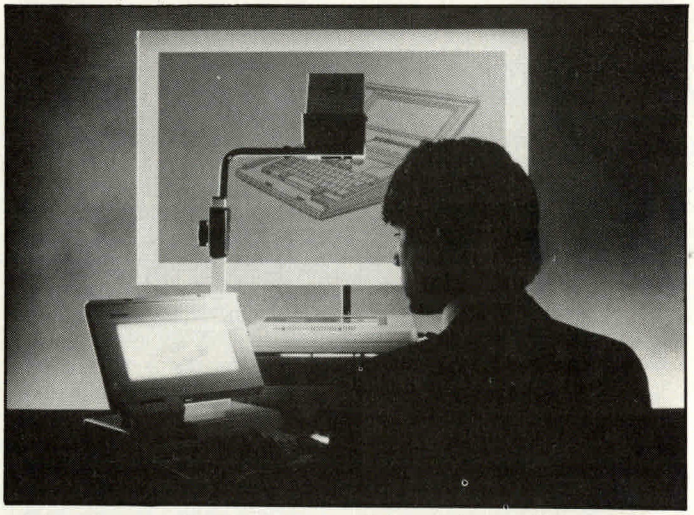
Hewson have announced the release of Battle Valley for the Amiga. The peace summit was successful. An arms treaty has been signed. All medium range missiles have been destroyed ... except two which have been captured by a group of terrorists who plan to destroy the western world unless their fellow terrorists are released from a penitentiary in the United States (and the US has been known to release certain Americans on the UK computer press as well.

Your task, as a mercenary employed by the US Government is to capture the terrorist bases in their desert outposts — Battle Valley — and eliminate the two missiles.

Programmed on the Commodore Amiga by Creative Thought with music by Jochen Hippel, Battle Valley's price is £19.99

Sharp QA-25 Image System

Sharp's QA-25 allows images on the computer vdu to be displayed via an overhead projector. Available from Action at £525.00, it connects directly to any IBM PC/XT/AT or compatible with a CGA port and 512K RAM.



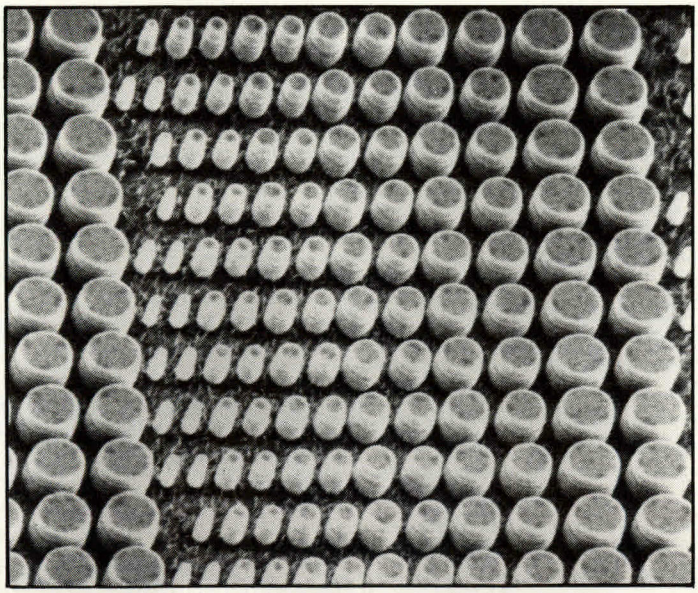
The QA-25 has a high quality LCD Supertwist screen which measures 208 × 130mm and provides a high-contrast, dark blue on grey display of 80 characters by 25 lines. It is fitted with an integral cooling fan to allow continuous operation with overhead projectors. Contact: Action Computer Supplies, Abercorn Commercial Centre, Manor Farm Road, Wembley, Middx, HA0 1WL. Tel: 0800 333 333.

Relief for "A" fever sufferers!

Written fundamentally as primary teaching material, TopClass Curriculum "A" level from Format pc, the Derbyshire based interactive learning software company, has been written for individual student support, revision and self coaching. Designed for use throughout all Further and Higher Educational departments such as Engineering, Science and Economics, where Mathematics is an integral component of the course, this software is suitable for course entrants requiring extra mathematics support and for use during the course as an on-demand revision aid.

TopClass Curriculum "A" level allows for students to sit at a computer and receive a thorough interactive tutorial on any selected element of the "A" level course. Each module includes the presentation of subject material, worked examples, the use of accompanying worksheets (typically 12 A4 sheets per module) and a final unit test of five randomly selected questions giving over 3000 possible combinations. A printed report of achievement is produced at the end of each unit test.

TopClass Curriculum modules can be personalised or modified by the teacher using TopClass authoring system. Contact: Eric Pugh or Geoff Glossop, Format pc Ltd, Goods Road, Belper, Derbyshire DE5 1UU. Tel: (0773) 820011.



A MILLION POINTS OF LIGHT

Give yourself a pat on the back if you knew that this is a hair-thin section of a chip that contains more than one million working lasers per square centimeter. The chip was created by Jack Jewell, Sam McCall, Yong Lee and Susan Walker, of AT&T Bell Laboratories, and James Harbison, Axel Scherer and Leigh Florez, of Bellcore.

Electronic Filing

Integrated Documatics, a company that has earned a high reputation in optical document storage, has launched the Imsoft File-Folder. It enables the user to file documents on his or her PC instead of an old-fashioned filing cabinet.

Based around optical disk storage technology, the software it runs on any PC or network system, converting each into a low-cost image retrieval and viewing station, the company claims.

Originals, claims up to A3 in size, including typed or hand-written text, photographs or graphics, are scanned into the system. They are then individually indexed and can be cross-referenced.

Users have the option of retrieving via a conventional cabinet, drawer or folder hierarchy or can search by document title and keywords, as in database applications.

Once retrieved, the information can be manipulated on screen by panning, scrolling and zooming for either VDU display or printing in the format desired.

Price: the software starts at around £5,000. It also requires and optical scanner and optical disc drive. This will store up to 20,000 A4-sized pages, as well as a host PC.

Contact: Integrated Documatics, Tel: (01) 543 3611.

Commodore's Starter Pack

Commodore is offering a PC with a printer, mouse and integrated office software, priced from £949. It consists of a Commodore XT-based PC10 Series III computer, a 9-pin dot-matrix printer, Ashton-Tate's Framework II program and Microsoft-compatible mouse. Commodore is also offering the PC10 with a 40Mb drive and EGA-compatible monitor. Price: £1,449.

Stereo Image Construction Kit

A-Squared, the makers of LIVE! and Perry Hoberman join forces to bring you MONDO STEREO, a stereo image-making kit.

A-Squared claims MONDO STEREO allows you to enter a totally interactive stereoscopic workspace!

Perry Hoberman has presented stereoscopic performances, installations, and sculpture throughout the US and Europe.

If you want to: quickly convert existing images into stereo 3D; create original stereo pictures/animation; gain full understanding of how stereo works, learn all you need to make effective, stereo images in dozens of different ways, you may want to check out Mondo stereo.

A-Squared claim the program allows you to "paint" stereoscopic depth into any Amiga image. With MONDO STEREO, you wear your 3D glasses while you work, so you get instant stereo 3D feedback! Complete manual (with extensive illustrations) included.

The program uses either X-specs 3D (alternating liquid-crystal) or anaglyphic (red/blue) viewing systems.

MONDO STEREO anaglyph glasses (with durable plastic frames) are included. In addition, the package has the "universal stereo depth calculator: a software tool to instantly determine correct stereo camera position for 3D modeling programs and digitisers. It has settings for: Sculpt/Animate 3D/4D, Videoscape 3D, Forms in flight II, Turbo Silver, and Generic Camera.

Price: TBA Contact: A-Squared Distributions Inc., 6114 La Salle Ave., Suite 326, Oakland, CA (USA) 94611, Tel: (415) 339-0330.

Mindware Ships PAGErender 3-D

***Mindware International** of Ontario, Canada, announced that it now shipping **PAGErender 3D** for the Amiga, a professional three-dimensional rendering and animation systems to combine AREXX support with a large object library and full support for stereo vision — suing either Haitex' X-Specs glasses or red/blue stereo vision glasses (which are included).*

In addition to a large object library of polyhedrons, letters, numbers and more, PAGErender 3D comes with tools for building and restructuring your own objects into cones, crevices, domes, waves, etc. — whatever shape you choose.

PAGErender 3D also generates its own animation scripts while you work Mindware claims. These can later be edited or programmed.

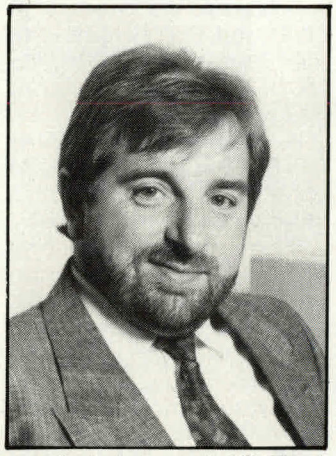
As an additional timesaver, PAGErender 3D doesn't confine you to one coordinate system. If Cartesian (standard x, y, z) coordinates aren't "natural" to the scene you want to create, for example, then you can switch to either Spherical, Cylindrical or Tetrahedral coordinate systems, thus reducing the time it take to render an image.

PAGErender 3D sells for $159.95 (US) and works on all Commodore-Amiga 500, 1000, 2000 and 2500 personal computers with 512k or more of RAM. The product comes with a version of the software specially intended to work with the 68020 processor. It should be available soon in the UK, but if you are especially keen for more information, contact: Mindware International, 110 Dunlop St., West, Box 22158 Barrie, Ontario, Canada L4M 5R3.

Tel: (705) 737-5998.

CBM appoints new Marketing Manager

Jeff Earl has joined Commodore Business Machines (CBM) in the key role of Marketing Manager. Jeff Earl previously oversaw the launch of Toshiba's portable computers in the UK.



Managing Director of Commodore Steve Franklin said of Jeff Earl's appointment: "His track record says it all. His work on establishing the portable computer market in the UK is proof positive that he can take Commodore further into the business world."

Jeff Earl comments: "Toshiba will be a hard act to follow and I have been extremely selective about my next step; I chose Commodore because it was one of the innovators of the PC market. Twelve years on from the launch of the PET, the company is still developing and producing innovative computers". On Commodore's business PCs, he comments: "The quality, specification and originality of the PCs makes them a very significant product line. In addition, over the next six to nine months, Commodore will be making a considerable commitment to the corporate marketplace by launching a range of enhanced products."

His appointment reiterates CBM's commitment to compete agressively in the corporate marketplace. Jeff Earl outlined his objectives at CBM: "Our intention is that Commodore will launch important new products that will dramatically impact the PC market in 1990. This new drive for the business market will have a positive effect in all our markets, including the retail and specialised markets such as desktop publishing, education and government. Our commitment to the consumer marketplace will continue apace with this major initiative, to ensure leadership position is consolidated with more percentage points pushing us further ahead."

Commodore reports that they will maintain a high involvement in all market sectors to support these efforts, and expect to announce additional appointments to the CBM marketing team.

Kudos to Microfiche Filer Plus

Mr. Dennis Corcoran, Vice President of Consumer Electronics Shows announced that Software Visions' Microfiche Filer Plus won a CES Innovations 89 Award in the Business Software category. Microfiche Filer Plus for the Amiga is a database program that uses a graphical interface conceptually similar to a microfiche reader.

Microfiche Filer Plus was selected from over six hundred programs which run on MS-DOS, Macintosh, Amiga and other personal computers. *Microfiche Filer Plus was lauded for its creativity, technical expertise, concept, originality, graphics and utility.*

Software Visions, Inc. is the developer and publisher of the Microfiche Filer line of database products for the Amiga. The line includes the Microfiche Filer and Microfiche Filer Plus database programs and the Designer Databases line of Microfiche Filer database templates. For more information, contact Software Visions at P.O. Box 3319, Framingham, MA 01701. Tel: (508) 875 1238.

Up to 3 Gigabytes ... on line!

The product is not cheap, but if you are a business person who has problems keeping large amounts of data instantly available in applications such as CAD/CAM, DTP, image processing or data logging, you may be interested in AMT GigaMasters.

The GigaMasters are very large capacity Subsystems that can be added to any already existing or new installations to boost total storage capacity by over 3 Gigabytes. Still higher capacities are possible when more than one GigaMaster per system is used.

The GigaMaster series comes in two models based on the hard disk capacity used. The GigaMaster 320 and the GigaMaster 620 are fitted with 320MB and 620MB hard disks to give maximum storage capacities of 1.6 GBytes and 3.1GBytes respectively.

The GigaMasters come in a floor standing enclosure, housing up to 5 full height drives. A quiet twin-fanned Turbo Cool power supply ensures that enough power and cooling for the proper operation of the drives is always provided. The GigaMasters come with either SCSI or ESDI hard disks and prices range from £3,500 to £22,000. Contact: Applied Microsystems Technology Limited, 249-251 Cricklewood, Broadway, London NW2 6NX. Tel (01) 450 3222.

UK Electronica 1989

AMP RECORDS has announced details of Uk Electronica 1989, the 7th Annual Festival of Synthesizer, New Age and Computer Music to be held at The Logan Hall, 20 Bedford Way, London WC1 on Saturday September 23rd.

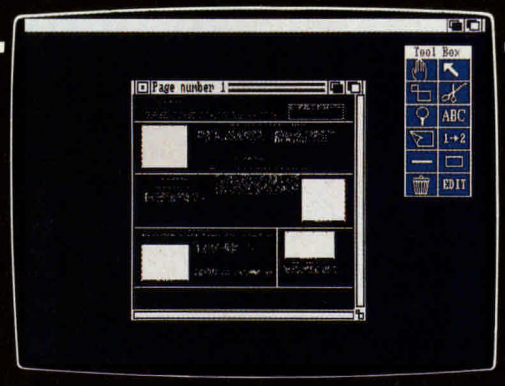
UK Electronica, which was established in London with last year's show at St. John's Smith Square, is the UK's only regular event devoted to live synthesizer and New Age music, computer composition and computer graphics. For one day in September, the thousand-seat custom-built concert hall of the Institute of Education will be dominated by keyboards, computers, lasers, video projectors, musicians and dancers for what the promoters claim will be a spectacular multi-media show.

As usual, UK Electronica combines new and well-established talents from the UK and overseas with the most imaginative visual displays around. Every performer at this year's show has been composing with the Atari ST micro (we won't ask why ...) with software from Steinberg, Passport or C-Bab, or the Commodore 128 using Mastertracks software; much of the live computer graphic work will be carried out on a bank of Commodore Amiga micros, and the laser display by Golden Light controlled by an IBM PC AT clone.

The show's computer-controlled graphics feature Commodore Amigas, the Fairlight Computer Video Instrument, giant wide screen projectors, and Golden Light's "laser sculpture" in addition to lights, dancers and special stage effects. Catering is available and the entire show will be videotaped for international TV coverage.

Tickets with full travel details are £12 in advance from AMP Records, PO Box 387, London N22 6SF. Enclose an sae. Details 01-885 5665 in office hours.

Their idea of DTP



DTP that starts with layout

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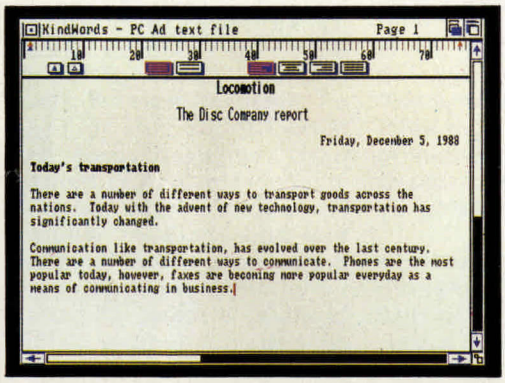
Publisher's Choice is a truly complete DTP system. In one package you get a word processor, a spell checker, a thesaurus, a page-layout program, a complete font directory and a clip-art library.

Every aspect of the DTP process is covered, there's nothing more to buy!

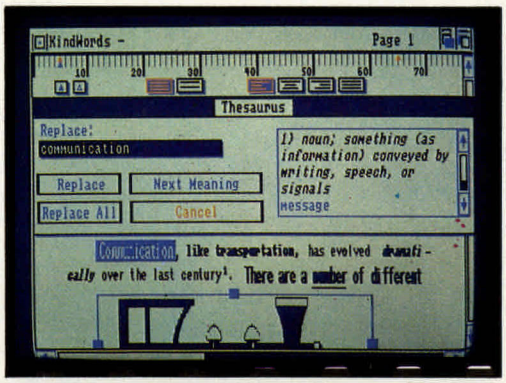
Publisher's Choice includes:

- Kindwords 2.0 – The leading word processors available for the Amiga.
- A 100,000 UK English dictionary spell checker
- A 470,000 word Thesaurus
- PageSetter 1.2 – A new version of this superb page layout program which takes text from Kindwords and produces spectacular documents incorporating text and graphics. It is compatible with any Amiga printer and offers Postscript output for professional quality text.
- Headlines – A stunning collection of over 35 hi-resolution fonts for text or headlines.
- Artist's Choice – why create your own image, it's probably already in amongst the 200 already stored on disc.

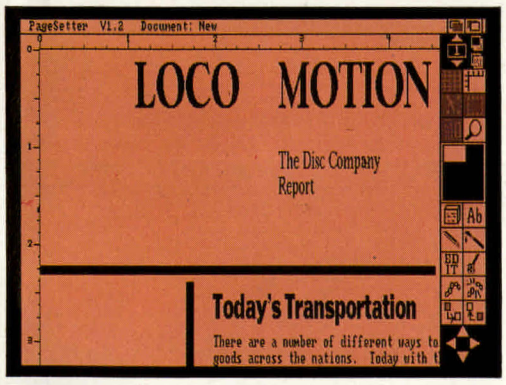
Individually these packages would cost hundreds of pounds – Publisher's Choice comes to you for **£99.95 inc VAT.**



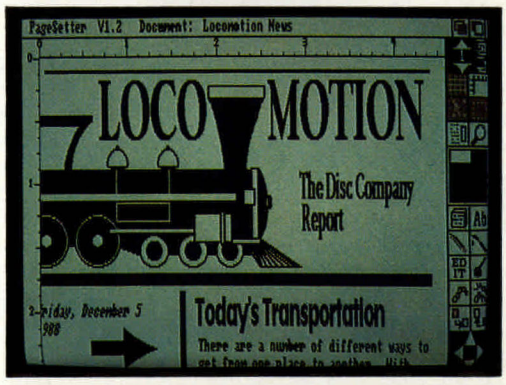
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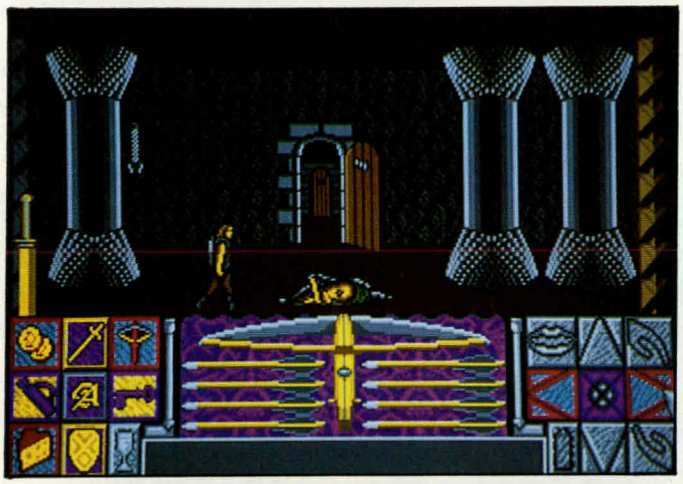


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The DISC COMPANY



CROSSBOW — THE LEGEND OF WILLIAM TELL

Screen 7 has announced Crossbow, its latest, self-proclaimed "ambitious" release. To his homeland — suffering under the yoke of a cruel and oppressive empire — William Tell is a symbol of hope. The crossbow and the apple have become a flag of freedom.

To the Emperor, he is a dangerous spark that must be extinguished before it become a flame. To the Resistance, he is a figurehead, a powerful ally if only they can persuade him to join their cause.

To Gessler, the man who created him, he is Nemesis. Gessler pushed him to the limit of human endurance, and beyond ... now Tell is back, seeking revenge.

You are William Tell — the reluctant hero, and a man forced to become a legend. (We wonder — did this guy ever have a problem keeping doctors away? Maybe this game could be called 'Privatise!' or 'One Bad Apple' or maybe even ... on second thought, maybe we"ll just wait and see).

Formats: PC EGA/CGA£24.99; Amiga £19.99; CBM64/128 £9.99 (Cass) £14.99 (disk).

CBM PC10-III Bundle

Following recent successes in the corporate PC market, Commodore Business Machines (UK) has announced the introduction of a new bundle aimed at the small business market and the first time PC user.

From July 1st, the PC10 Series III (XT compatible) range of microcomputers will be available in a package with Ashton Tate's Framework II, monitor, mouse, and a 9-pin dot matrix printer.

Prices begin at £949 for a twin floppy disk drive/mono monitor configuration; £1,149 for the colour monitor version and £1,299 for the EGA monitor. A 40Mbyte hard disk/mono monitor configuration will cost £1,149, whilst the colour and EGA versions of the hard disk package are available at £1,299 and £1,449 respectively. The new bundle will be supported by extensive press advertising.

The Framework II integrated software package comprises a word processor, database and spreadsheets. The software comes complete with free 90 day telephone hot-line support. Later this year an 80386-based machine, the PC50-III, will be introduced in the UK.

Source Level Debugger For Benchmark Modula-2

Avant-Garde Software, makers of Benchmark Modula-2 have announced the release of the Benchmark Modula-2 Source Level Debugger, what the company claims is the first completely mouse and menu driven Source Level Debugger for the Amiga. The Source Level Debugger is a tool for interactively locating bugs in software written in Modula-2.

The debugger implements ten different types of windows including source, symbolic data, disassembly, registers, memory, module list, procedure call chain, break point list, information and directory. The debugger provides an object oriented user interface where all operations are performed using the mouse to make window and menu selections.

Using the debugger it is possible to examine user created data structures of any complexity, set break points, examine memory, single step and many other useful operation. All registered users of Benchmark Modula-2 will be notified of the immediate availability of the Source Level Debugger, Avant-Garde tell us.

Pictionary

With the phenomenally successful Trivial Pursuit under its belt, Domark is about to travel the same road with Pictionary. Pictionary is one of the most amusing and entertaining board games available. It has taken the States by storm.

If you get a chance to play the board game, do. Pictionary is a game which is played in a similar way to charades, only on paper. Instead of acting out a word or title, you and your team mates must try to guess the various words by sketching clues to each other. You don't have to be an artist to play, all that's needed is a good imagination and a fast pencil.

Or in this case, a good imagination and the ability to draw on screen using an innovative graphics package that's an integral part of the game. Pictionary is the first computer game to incorporate such a unique feature. It's fund to use too and includes solid, broken and dotted lines of varying thicknesses, rectangles, circles, ellipses as well as a number of fill patterns. In fact, all you need to produce the sketch which will give the vital clue to your team mates.

Available for Amiga, IBM PC, and Commodore 64 (disk and cass).



EPSON INK JET PRINTERS

Epson has introduced two new, near silent, 24-nozzle ink jet printers: one is an 80-column model (SQ850); the other is an upgraded version of the existing 132-column model (SQ2550).

With these two models, Epson has announced that they are aiming to increase the appeal of the company's top selling (Romtec) ink jet technology, targetted to professional applications where very low cost per page quality printing is required in noise sensitive areas (Epson ink jets operate at < 50dBA, the company reports).

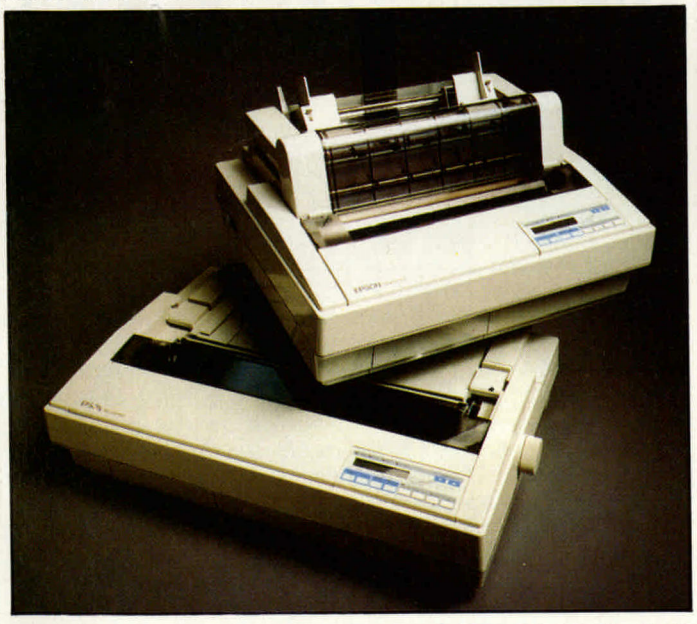
Both models incorporate the Epson paper management system whereby cut sheet or continuous paper may be selected from the SelecType control panel and then handled automatically.

The company promotes the ink cartridges as "no mess" — with a life of six million characters in draft mode and three million in letter quality. The Epson SQ850 and SQ2550 also have high speed draft at 12cpi of 600cps (500cps at 10cpi). In addition, letter quality print speeds are 180cps at 12cpi, 165 at 10cpi. And as well as 12cpi and 10cpi, proportional spacing and 15cpi are available as standard.

Parallel Centronics and serial RS232C (25-pin) interfaces provide compatibility with most PCs. Other optional interfaces are coax and twinax boards and cables for use with IBM minis and mainframes, and IEEE-488.

The Epson SQ850 is 537mm wide, 450mm deep, and 177mm high. The Epson SQ2550 is 664mm wide, 450mm deep, and 177mm high.

Price: SQBSO £899; SQ2550, £1349. Contact: Epson (UK) Limited, Campus 100, Maylands Avenue, Hemel Hempstead, Hertfordshire HP2 7EZ.



FALLEN ANGEL

Screen 7's latest release will allow you to be the 'social avenger' you always wanted to be. Listen to this storyline: He had been the best! The trains on his patrol had been free from crime. He had seen to that. But the death of his "Green Beret" brother from a drug overdose sent him over the edge.



Seeking vengeance", he "hounded drug dealers and showed no mercy when he caught them. He became well known as a renegade — the FALLEN ANGEL.

Wearing his brother's beret as a tribute, he was a familiar sight on the New York subway network. A man to be avoided at all costs. (Shades of Dan Silva? Read on ...)

Then came a break. By chance (???) he uncovered an international drugs ring using the subway systems of major cities as their distribution network. (It must have something to do with those ticket-taking machines ... hmmm ...)

Travelling from country to country to seek out and then eradicate the local chapters of the evil drug ring became his deadly mission. He became the judge, the jury and the executioner — an angel of death.

FALLEN ANGEL is promoted as a scrolling arcade-action game spread across four major city rail networks.

Formats: PC EGA/CGA £24.99; Amiga £19.99; CBM64/128 £9.99 (cass) £14.99 (disk).

'Tail-ess' Mouse

TDS-Numonics has released what they claim to be the world's first cordless mouse.

Called 'the Manager Mouse Cordless', it uses infra-red beams to transmit data to a receiver connected to a PC. This can be mounted onto any surface up to 2.5 metres away. Data is transmitted using the RS232 serial port.

TDS says that the mouse can operate for up to ten hours on a single charge and has an autoswitch which turns the device off it is out of use for more than 60 seconds.

A recharger is supplied for the mouse. A conventional cord is also included.

For movement, the mouse uses two urethane wheels, rather than the usual rubber-covered tracker ball. The company claims these help avoid traps such as dust and other debris.

The product uses its own suspension system which is designed to keep the device tracking smoothly on almost any surface and even at a 45 degree angle. Contact: TDS-Numonics, Tel: (0254) 676921.

New Virus Publication

Sophos Systems has announced it will begin publishing the Virus Bulletin. As an independent monthly title, it will carry no advertising and aims to publish articles by various experts in the field of security and virus detection.

For information and subscription applications, contact Sophos Systems directly.

Tel: (0844) 290396.

MAILSPORT

Attention all PR pro's: Southdata's MailSort software, approved by Royal Mail, carries out all functions specified in the Royal Mail's MailSort Manual. It allows the user to do such things as: print addresses, bag and bundle labels; print test lable patterns; print lable runs without MailSorting if desired; and many other functions.

The Royal Mail test database of 21,482 addresses was sorted, ready for label printing, in 7 minutes on a standard 286 AT clone. The software will deal with lists of up to 32,000 addresses in one run, Southdata claims.

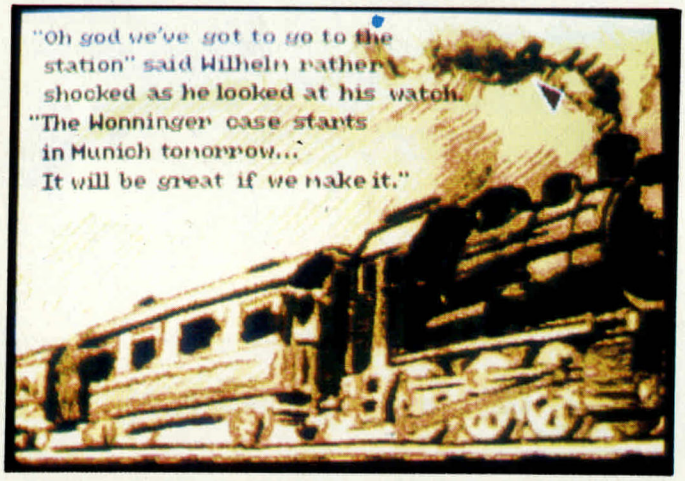
There are two versions of the software: i) to work with any ASCII text files — produced by other database managers or word processors; and ii) to work directly with Superfile databases.

Operating systems and prices: MS-DOS single user, MS-DOS multi-user, (Excluding VAT).

Southdata will also specify, supply and install complete hardware and software systems (For all of you thinking of simulating the Royal Mail service, sorry mates, the dog is not included.)

Mystery of the Mummy

Do you have an Oedipus complex? No matter, you may still want to know that the latest release from Rainbow Arts is a new adventure game entitled the Mystery Of The Mummy. In the game, a series of baffling murders linked to an African mummy is keeping the whole city in suspense. Is there really a curse on the mummy or are there ulterior motives at work?



Herr Rabensberg wishes to employ you as a detective — the challenge proves too hard to resist — you will solve the case and unravel the mystery. However, there are also other people who are interested in the mummy and you only have five days to "wrap up" the case! In Mystery Of The Mummy, you are given several aids, such as a chauffeur driven car, use of telephone in your hotel room to gather information, and newspapers that provide clues.

The game is menu-controlled and contains more than 60 different graphics which have been originally drawn in charcoal and then digitized. Thus it is presented in tones of brown/sepia providing the mysterious and antique atmosphere of Hamburg in 1912. Formats: C64 (disk) £12.99; Amiga £19.99; and IBM PC £19.99.



Spectravideo New Stick

Spectravideo are launching a new joystick called the QS-118 Wizmaster.

Facilities available with the joystick include 3 different control mechanisms, push button finger and thumb control, or 2 different sized levers, 2 fire buttons, auto fire switch and a computer system select button.

The Wizmaster joystick is available in the QS 118F form for the Commodore 64 and Amiga. Price: £11.95. Contact local dealers for more information.

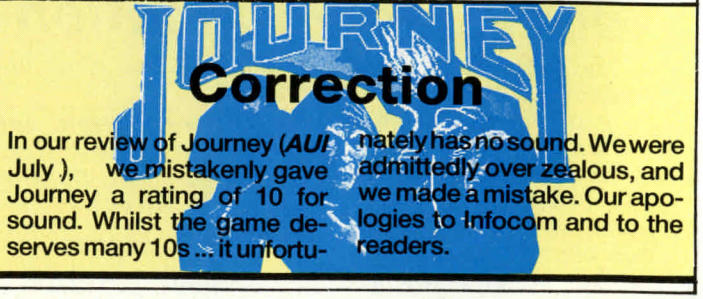
CBM takes over as organiser of The Commodore Show

The official announcement has been made: Commodore Business Machines is to replace Database Exhibitions in the promotion, management and administration of the Commodore Show.

This decision means that Commodore will be in full control of pre-show organisation, dealer bookings and promotion, while Database Exhibitions remains contracted for the daily management of the three-day event. The show will feature over 70 stands, and projected attendance is 15,000. For the first time, the latest Commodore PCs will be on display, but CBM assures us the show will retain its broad appeal across the consumer markets.

"The Commodore Shows have enjoyed continued popularity over the years," commented Steve Franklin, Managing Director of Commodore (UK). "They are a valuable forum for discussion amongst users and an important reflection of the current state of the market. Through Commodore's more direct involvement in the running of the Show we hope to offer a great deal more to those attending, and attract a much broader cross-section of the public."

This Commodore Show will take place at the Novotel, Hammersmith, on 17th-19th November.



Correction

In our review of Journey (*AUI* July), we mistakenly gave Journey a rating of 10 for sound. Whilst the game deserves many 10s .. it unfortunately has no sound. We were admittedly over zealous, and we made a mistake. Our apologies to Infocom and to the readers.

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Great things in store for 1.4!

The 1989 North American Developers' Conference

Tim Grantham reports from the USA

Commodore Business Machines unveiled its most ambitious system software enhancement program ever at the annual North American Amiga Developers' Conference in San Francisco, Calif. Although Amiga software manager Andy Finkel emphasized that the features of Amiga DOS 1.4 had not been finalized, it became clear to the over 300 third-party software and hardware developers in attendance that almost every part of the Amiga operating system would be affected.

The watchword of the planned enhancements is 'compatibility'. Almost all software written to run under Workbench 1.3 will run under 1.4. Only those programs that, in contravention of CBM's programming guidelines, access private data structures within the operating system, may not work as intended.

The most obvious difference for users will be in the graphic interface. Harry Copperman, CBM's new president of its US operations, announced that the company has hired an artist to redesign the look of the Workbench, to give it a more 'professional' appearance.

But the changes to Workbench are not simply cosmetic. Users will be able to double-click on an icon to load and run a program and, *while that program is loading*, double-click on another icon to load and run another program. In other words, Workbench will become multitasking.

Another enhancement to Workbench will solve an apparent problem for many new users of the Amiga. If a disk does not contain any .info icon files, double-clicking on a disk icon pops up an empty window. Only the file gauge on the left side of the window reveals that the disk contains files. Workbench 1.4 will use a text window to display the names of all files on the disk and even treat them as icons: the user will be able to double-click on a program name and Workbench will load and run it. All the other operations usually associated with icons, such as select, multiple select and drag, will also work on file names.

Another big plus for users will be the incorporation of Fast File System (FFS) into Kickstart. This will permit the use of FFS for floppy disks as well as hard disk drives. Old File System will still be available, subsumed into FFS, to maintain compatibility.

Workbench 1.4 will also support the Enhanced Chip Set. The new custom chips, which consist of the *Super Agnes and Super Denise* chips, replace the current versions in the A500 and the A2000 (they cannot be used in the A1000). CBM is already shipping machines equipped with the Super Agnes, which can address a full 1 Mb of graphics (CHIP) memory.

The Super Denise chips will provide a variety of new screen modes, including a so-called 'productivity' mode that features 640 × 480 *non-interlaced* resolution, with four colours chosen from a palette of 64. This mode requires a multiscan or bisynchronous monitor; it cannot be viewed with a standard Amiga monitor. Other modes include a 1280 × 200/256 (1280 × 400/512 interlaced) mode, again with four colours out of a palette of 64, that *can* be used with NTSC and PAL Amiga monitors.

The Super Denise chip will also provide enhanced genlocking capabilities. Any one bitplane will be genlockable and any one colour register can become the 'transparent' colour.

What does this mean for users? The extra CHIP memory will let them run more applications before running out of graphics memory: *DPaint III and Professional Page* could both be run at maximum resolution and maximum number of colours at the same time. Those users into music will be able to play back larger sound samples. Those with genlocks and the right software will be able to use animated chromakey effects for desktop video. The new 32 Kb × 32 Kb blit size (currently 1 Kb × 1Kb) will provide smoother, faster animation.

The Super Denise chips will be made available when the 1.4 software is released. CBM made no commitments to dates or prices, a wise move given the scope of the upgrades. My guess would be at least twelve months.

Developers were very pleased to hear that AREXX, the interprocess communication language ported from the IBM world by William Hawes, will be put on every Workbench 1.4 disk. AREXX provides a way for different programs to talk to each other. For example, a spreadsheet program that supports AREXX would be able to pick up financial information from an AREXX-compatible communications program *as it was being downloaded*, massage it and hand it over to an AREXX-compatible word processor for formatting and printing.

Developers were also heartened by a number of marketing strategies announced by Copperman for the US market. While most of these will not have a direct effect on the British market, they are crucial to the company's future financial well-being. They include the establishment of a VAR (Value-Added Reseller) program, a revamping of the dealer network, more dealer training, development and marketing partnerships with selected developers, a greater focus on the university market (especially with the UNIX Amiga) and an ambitious advertising campaign.

Two announcements *will* affect users in the UK: first, a commitment to more funding for research and development for the Amiga product line; and second, a new emphasis on a consistent user interface across applications. In the latter case, Commodore will encourage developers to use standard system services, to be provided in 1.4, rather than their own customer requesters, gadgets and menus. This will help users of one program learn to use another more quickly. The Apple Macintosh has proven to corporate America that this approach provides big savings in training costs. Commodore will not be as rigid as Apple in enforcing these principles with its developers; but the redesign of the Workbench and the development of standard file and font requesters shows they have recognized the value of a consistent way for users to interact with the Amiga.

Commodore also announced the development of the Amiga 3000. The company would only say publicly that the new computer would employ a Motorola 68030 microprocessor on the motherboard.

Developers left San Francisco tremendously excited by Commodore's plans, and impressed by what many perceived as a more professional attitude on the company's part. Whatever products finally emerge, users can also be assured that CBM is not resting on its laurels.

T.G.

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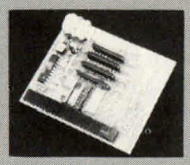
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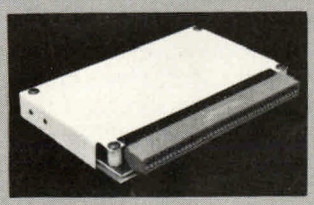


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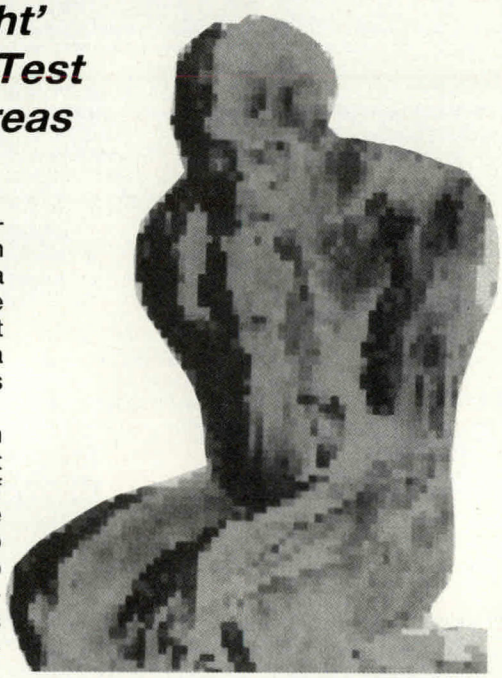
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Thinker

Have you ever 'thought' about buying a HyperTest processor? Paul Andreas Overaa reports



Thinker arrived at *AUI* almost unnoticed - no flashy presentation just a single disk together with a fairly plain looking A5 manual. To be honest, we did not even bother to look at it for a couple of weeks - that was a mistake..... because it turns out that this is a very useful program indeed !

Thinker comes from Poor Person Software. What is it ? It's a HyperText processor. What is HyperText ? Well, if this article was being read as an on-line HyperText document all you'd need to do is point at the word 'HyperText' to find out. Footnotes are a form of HyperText.... within the body of the text comes a directive to look elsewhere. With footnotes the directive is a footnote number, with HyperText the links are the words themselves.

In order for HyperText to work the text is divided into sections and these sections have labels which can in fact be words present in other parts of the text. You encounter similar ideas when you see phrases such as 'see Chapter 2 - Section 5' in a piece of text, but with HyperText these ideas are taken much further. Thinker uses Hypertext within the framework of heirachically structured text and the easiest way to describe what this means in practice is to give you an example..... I've recently been compiling lists of chemical terms which include both brief definitions and more detailed data. At the end of the day I wanted the complete text available in computer readable form, but in addition to that I also wanted to able to extract both an index and a glossary of terms automatically. It was in doing these last two jobs that the benefits of a HyperText processor really became apparent.

To create the HyperText document using Thinker was easy: First 26 statements, namely the letters A to Z, were defined. Then the words themselves were added at the next level down in the heirachy (each letter then had a set of words which can be thought of as the children of that particular letter mode). Brief definitions of each of the words were then added at the next 'level' down to the words themselves, so that each word then 'owned' a glossary description. Finally each glossary description was made the 'parent' of a set of statements containing the more detailed data.

Whilst working on, or reading, a Thinker document it's possible to control the level of detail being displayed by altering the 'clipping level'. A clipping level of 1 lets you view only the highest level statements (which in our example would have been the letters A-Z). A clipping level of two brought the 2nd level of the heirachy into view, i.e. the index. Increasing the clipping level to 3 provided the glossary and higher clipping levels produced the more detailed info.

Thinker uses it's own Word Processor / Text Editor for manipulating Thinker documents. This has reasonable editing, cut/paste, search/ replace facilities, and includes a spelling checker. Most importantly - it includes facilities for editing the heirachical structure of Thinker documents... i.e. you can move statements, and sets of statements, around within the heirachy that you build - it's these facilities which make Thinker very powerful indeed.

Because you can 'hide' sets of statements by virtue of the selected heirachical layout and clipping level combination it's necessary to have some way of knowing when statements are hidden from view. Thinker prefixes such nodes with a '+' sign gadget and by clicking on these you can modify the effective clipping level of any individual term - this gives very flexible control over what you do, or do not, see.

One of Thinker's main uses is in designing documents which are to be read 'on-line': A person reading my finished 'document' on-line would see a list of 26 letters. By pointing to any given letter a list of words which begin with that letter will appear, if a term is selected a brief definition appears and when key items in that definition are selected the user gets provided with the more detailed descriptions.

Don't forget that the above example is just a simple one: Thinker itself is capable of much more..... documents are made up of collections of paragraphs (statements) arranged heirachically and containing textual links to each other. Each statement in a document can have a label and can be referenced by a text string which 'names' that label. These links can be within the same file, or can reference other files and other disks, IFF pictures or other applications programs.

Creating documents for on-line viewing is easy, but my main interest was in getting the material out of Thinker format and into word processors etc. Thinker can import and export data very easily..... both complete documents and individual branches can be exported (as ASCII files) and the facilities work at the level of detail currently specified by the clipping status. For my index file I exported using a clipping level of 2, for the glossary a level of 3 was used. By using a clipping level 4 the whole document was exported.

Uses ? There are endless possibilities for this program.... designing and writing programs (pseudo-code at the highest levels - real code at the lowest), book planning, 'free form' data-base uses, project management and ideas processing etc. etc. ! Any problems ? None to speak of but the program can be a bit slow when you're working with disk based documents - I tended to use the ram-disk with periodic back ups via a separate CLI. Thinker uses a cache arrangement but points out that FAC II is a help for serious users. The program takes a little while to get used to but that's only to be expected. Any niggles ? Yes, the absence of scroll bars in the editor is regretable and the way the display gets re-drawn from time to time during use sometimes makes the program appear awkward - Thinker is capable of being put to serious use and should offer a user interface that makes it as easy to use as possible.

Overall conclusions ? Thinker is a fascinating program and one which is well worth looking at ! It costs #49.95 (incl VAT) and despite the (minor ?) niggles it's a program which I like, will use.... and, perhaps more to the point, would recommend.

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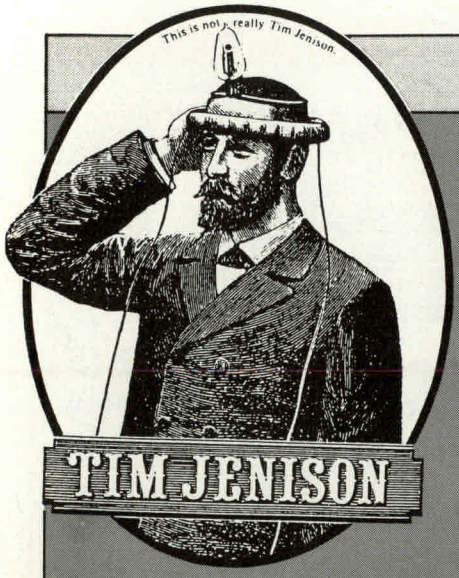
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Amiga in Transition

AmiEXPO CHICAGO-STYLE

Newtek's illuminating key speaker

The huge, luxurious Hotel Hyatt Regency in downtown Chicago was generously populated with heavy men in suits equipped with hearing aids. These neatly tailored men had the odd habit of talking up the sleeves of their suits, which also had unusual bulges under the arms. No, it was not a convention for the deaf. The heavies were "Security", one told us. To protect the Amigas at the second Chicago AmiExpo? No, it was for the President of the United States. Was he going to visit AmiExpo? Was George Bush an Amiga User? We asked incredulously.

The letters, NGA, were pointed out to us. National Greyhound Association? Was the Pres also a doggie fan?

The Security man's eyes hardened. NGA, we were informed, stood for National Governors Association - a group that was having a coast-to-coast televised convention called "America in Transition" at the very same time and only a few yards away from where the thousands of fanatical Mid West Amiga fans were to gather. And George (Where's the Beef?) Bush was to address the collected Governors of the U.S.A's 50 states.

It was clear from the determined faces of those bearing AmiExpo badges as opposed to those dangling NGA markings what was the really interesting matter. The Amigans marched past the sleeve whispering heavies - had neat one inch size microphones linked to their watch straps - without a further glance. President George who? Now have you seen that Trumpcard upgrade or the A1000 Rejuvenator? Those were the real interests of the moment not the transitionary problems of the America that concerned the low-voiced huddles of white-haired chiefs of staff, young sharp eyed special assistants and the attractive blonde power groupies with their mobile telephones. All the power that the attendees at the AmiExpo wanted had nothing to do with America in Transition but what could be seen on their Amiga's monitor screen. That's where real power lies...



Chicago, an Amiga 'kind of town...'

The power of the Amiga over its enthusiasts is indeed enormous. One, large, shorts-clad Chicagoan came to the Amiga User Stand and longingly examined the magazines before purchasing two for the princely sum of four dollars.

"I'd love to have them all. But my wife has taken away my cheque book and my credit cards before she'd let me come here! She knows my computer comes before housekeeping!" He also told us of the time when, like many Amiga owners, he had started with a C64. "You know they had some trouble with the power supply at one time? Well, I had that problem. But I just couldn't wait until they got off their asses and sent me a new one. So I went out and bought another C64 while I was waiting!" He grinned, stuffing away the Amiga User Internationals in an already full rucksack. "My wife she knew that - and she knows it's worse with the Amiga! I just love that machine!"

The enamoured Chicagoan was not alone in his feelings for the Amiga. The crowds who poured into the hotel were the most enthusiastic yet seen at an AmiExpo. They did not completely reach the numbers of the nearly 12,000 who attended in March in New York but they were untiring in their interest - some coming back for all three days - and they seemed to want to buy everything they could get their hands on. Every single available copy of Amiga User International was snatched up by the end of the second day as was its sister magazine the Candian-published Transactor for the Amiga.

The keynote speeches and the seminars for which the AmiExpos are well-known were also fully attended. Those lucky ones who went to the keynote speech made by Newtek's founder Tim Jennison were treated to the most spectacular AmiExpo keynote presentation yet.

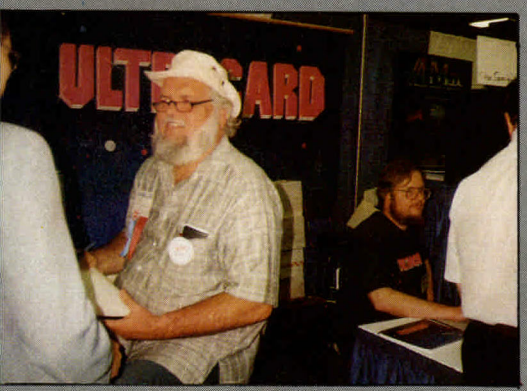
The story is that the geniuses who invented Digiview, easily the most successful Amiga digitiser, Digipaint and now are promising shortly to deliver the Video Toaster (see AUI August for the preview) are somewhat eccentric in their ways. Among other little quirks they are reputed to cruise the streets of Topeka, Kansas - an otherwise quiet and unexceptional city in the conventional Mid West - on roller skates. This unusual activity for computer programmers and engineers is added to in speed and excitement by wearing an attachment in which the skater has the aid of a large motorised fan strapped to his or her back. Tim Jennison, usually a man of serious men, arrived at the huge hotel ballroom area where his speech was to take place wearing the fan on his back and skated through the auditorium up to the platform to score an unequalled sensation at keynote openings. His presentation was funny, inofrmative and stimulating - as was the introduction to it

made by Laura Longfellow, the most famous face in the Amiga Dimension from her inclusion as the model in Digiview's demos and Newtek's current advertisements.

The Show itself demonstrated that like all things of computing - and the NGA's America - the Amiga in transition. There were few exhibitors left from the original ones who appeared at the first AmiExpo in New York in October 1987. Many have found the business of convincing the Amiga market of the value of their products too difficult or unrewarding. But there was one represetative of the launching of the Amiga, Jay Miner, "The Father of the Amiga", leader of the team that developed it even before Commodore came on the scene.

Jay Miner, recovered from a serious illness, was there on the Intuitive Technologies stand that was showing the Ultracard, an exciting development based on the idea that has been so successful on the Apple Macintosh - the Hypercard.

The "Hypercard" concept allows information to be obtained not in the linear form so familiar in computing, clearly seen in such things as databases but much more in an associated form as in the way our minds work.



Father of the Amiga and Ultracarder, Jay Miner.

Jay Miners presence on the stand drew the crowds but the Ultracard could any way be considered the sensation of the show and will no doubt lead to exceptionally interesting developments to come on the Amiga.

Another Mac influenced development was Central Coast Software's Mac-2-Dos. Already well-known for Dos-2-Dos, CCS's latest is a files transfer utility which permits the Amiga to read and write files from and to Macintosh floppy disks. And the persuasive Mac force in the U.S.A. was felt with A-Max from Readysoft, the Mac emulator which could have major effects on the Amiga world. A-Max will be reviewed in the next issue of AUI.

Readysoft, well-regarded for their successful Amiga version of Dragon's Lair are promising a game of equal impact to be released in November - Space Ace. From the early version we saw at the Show, it could be as sensational as Dragons Lair.

Since Commodore announced the Amiga transputer at the Cebit Show in Hanover in March 1988 little has been heard of it. However, Digital Animation Productions were showing transputer and accelerator boards running, they claimed, at a mere 48Mhz. Another powerful Amiga resource shown as Grafix Computing's XShell and interface for the successful XCAD.

Great Valley are known for their products adding to the speed and memory capacity of the Amiga. In Chicago they revealed their impact A3000 Plus 1 Accelerator Board. This contains the 68030 and runs at a gentle 32Mhz. Also new was GVP's 50Mb Tape Streamer and 44Mb removable hard drive system.

M.A.S.T. the add on specialist had what they called their "powerhouse of peripherals". Including an enhanced Unidrive with an LED display and read/write indicator. They too were Mac influenced and presented their Amiga-A-Tosh, a Macintosh compatible floppy drive. They also had their popular Minimegs, 2 megabytes of external RAM in a very small package.

Games

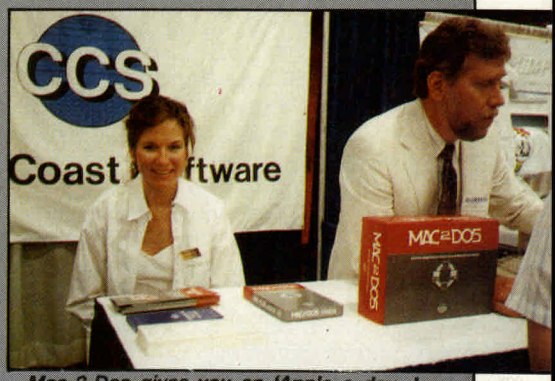
There was not a great deal to see on the entertainment side. Though a new company, Innerprise Software, run by Paul Lombardi, ex-Microprose and Discovery, was showing interesting but unfinished versions of Battle Squadron and Outlander, from the creators of the hit Sword of Sodan. "For serious gamers only" claimed Micromentum of their Uzzi Interface. This is an interface to make your joystick or mouse move up a grade in the scores area.

A name new to us, Gravis was presenting an expensive around $80(£50) joystick that had to be something exceptional at that price and certainly looked and felt smooth to use. U.K.'s Psygnosis was exhibiting through their U.S. company but overall the games scene was hardly of importance at the Show.

Luggable Amiga

The portable Amiga reported a few months ago in AUI was on the Micro-Mentum stand. "Portable" is perhaps still an exaggeration at this stage. Even its creators say it is still heavy enough only to be considered "luggable". But on a five inch screen and only with a mains power supply, it was there in public at last. The estimated price has risen to $2500 but the date of next Spring might be a shade optimistic. Nevertheless, that and the hyper, sorry, ultracard were certainly points of strong interest. As was Newtek's Video Toaster. Though we heard a visiting dealer complain that this was the third show it had been publicised and he would rather have had it to sell at $2500(£1700) than the official price of $1595(£1000) but he could not get his hands on it.

It was noticable that, at least among the suppliers of Amiga goodies if not the buyers in Chicago, there was a feeling of uncertainty about the future of the Amiga. In the U.S.A., unlike in Europe, Commodore has concentrated its efforts on selling the A2000 not the A500. This has meant competing with the likes of Apple and IBM, a very different quality of opposition to Atari, who in the U.S., are thought of merely as games console sellers, for the ST is virtually non-existant.



Mac-2-Dos gives you an 'Apple a day...'

Changes of senior Commodore personnel and the dominance of Nintendo in the entertainment area, creating problems for software companies have also contributed to the atmosphere of uncertainty for computers such as the Amiga. And there was at the show, particularly among the suppliers of Amiga software and peripherals a feeling that "Commodore had better get its act together" for far fewer Amigas were being bought in the United States than deserved or in fact needed to be purchased to make the Amiga industry a prosperous area. The sense of that uncertainty may well be one of the reasons why so few of the original Amiga suppliers still remain active in this field.

In Europe the A500 has already established itself as a force, especially in personal computing, most notably in the games area. In the U.S. Commodore would like to be in the high price, high profit, business computing sector with high level Amigas. The machine is still a wonder to all who use it and there are still interesting products emerging in that area. But with the undoubted difficulty of re-establishing itself and the Amiga as a top competitor in a field dominated by MSDOS computers, CBM may have to look to the way it has succeeded elsewhere and develop its main thrust not with the big guns of the A2000 class of Amigas but with the more humble but mass market appeal of the A500.

At the Chicago Hyatt Regency Hotel it was not only America but also the Amiga that could be seen to be in the need of a process of a radical transition.

AUI

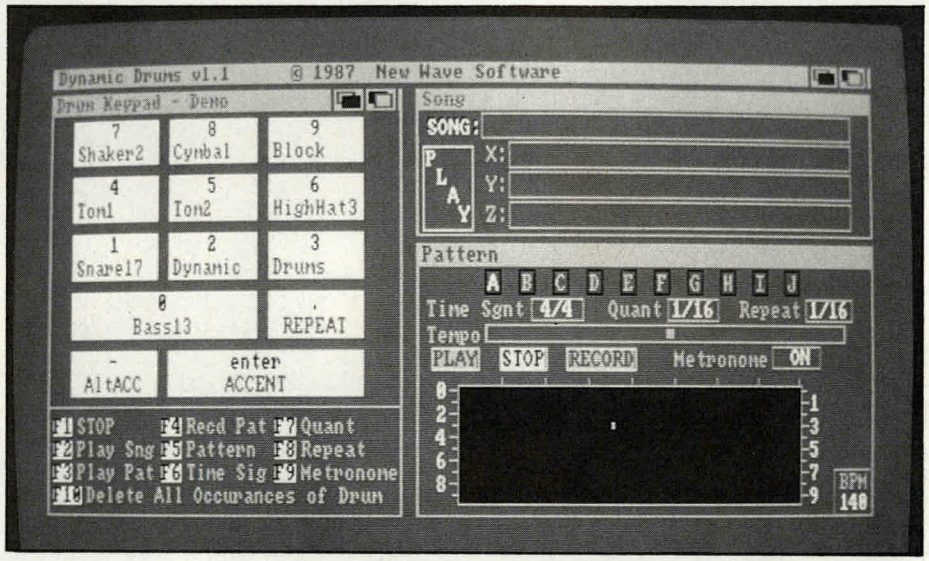
Dynamic Drums v1.1

Turn your Amiga into a drummer's den, Paul Andreas Overaa shows you how

Dynamic Drums comes from New Wave Software and is a program which lets you turn your Amiga into a drum machine. The package runs on all Amiga models and includes a disk containing around one hundred sampled sounds. If that's not enough for you it's also possible to incorporate any other IFF samples that you can lay your hands on !

Any given 'drumkit' consists of up to ten sound samples. Creating drum tracks, building patterns and producing complete songs are all straightforward processes and even the beginner will have little difficulty in producing some effective drum parts. You can adjust both volume and pitch of individual drums and there's a randomizing function which helps to add 'feel' by producing subtle variations. A stockpile of prewritten rhythms are available and these include rock, funk, country and latin patterns - use them unchanged or edit them to suit your own requirements, either way it's handy having them available.

Also provided is an instructional cassette - it covers some useful basic drum tutorial material and is going to be helpful for those users who haven't programmed a drum machine before.



With version 1.1 of Dynamic Drums you can use a MIDI keyboard or devices such as the Roland Octapads to record drumbeats. If the external device is touch (velocity) sensitive then the drumbeats will reflect how hard you play the keys or pads. The MIDI facilities are workable but they are rather limited so this is not a package for professional use - nor would you go gigging with it !

On the brighter side it is a package which will be useful to beginners, for those wishing to do home recording, and for the many amateur musicians who just enjoy playing and making music. It handles IFF sound samples and so it will also find use for generating extra percussion and 'special effect' sounds etc.

P.A.O.

Price: £52.13 (+ VAT). Contact: HB Marketing Ltd. Brooklyn House 22 The Green West Drayton Middlesex UB7 7PQ. Tel: 0895 444433

More Advanced MIDI Projects

by R. A. Penfold (Bernard Babani £2.95)

The second MIDI project book from R. A. Penfold makes a pleasant change from most MIDI books which have appeared recently. It includes a brief, but very useful, introduction to MIDI and MIDI messages but after that it is primarily a hardware orientated project book. Three simple projects: a MIDI l.e.d. indicator; a THRU box; and a MIDI merger, provide a reasonably easy start and any of these should prove within the capabilities of the interested beginner. After that the book aims at readers who have a certain amount of project construction experience and following a discussion of the 6402 UART comes projects which include a MIDI pedal (for sending Program Change messages), a MIDI Controller and a 'channelizer' utility device. The projects do not include the sophistication which you usually get with similar commercial offerings but they are functional, interesting and perhaps more importantly will not be particularly expensive to build.

Like all offerings from the Bernard Babani publishers, this book is good value for money. It covers some interesting ground and because it deals with topics from a hardware angle it makes a refreshing change from most other MIDI publications. Even though you may not want to actually build every project you're bound to be tempted to try a few of them.

P.A.O.

ISBN: 0-85934-192-5

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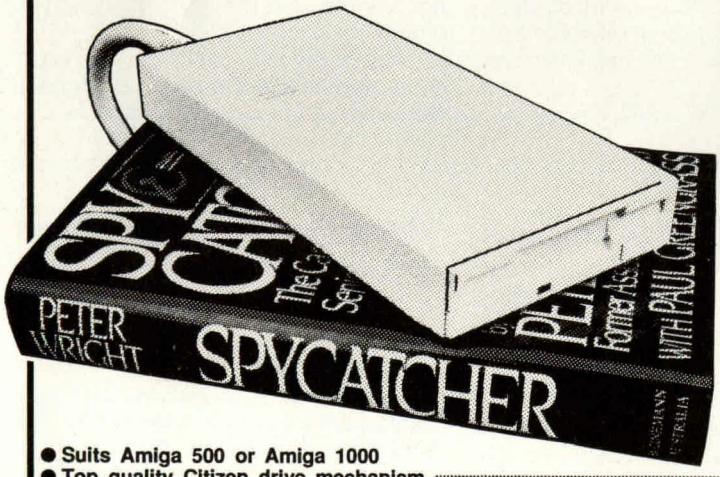
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Superbase For All

Precision Software's Superbase Personal has already set the mark for others to follow. Mark Smiddy poses the question: is the basic system as good as the software it spawned?

Released in late 1987, Superbase Personal is starting to look a little old. Face facts, it has remained almost unchanged since its 1987 release when big brother Superbase Professional has already reached version 3.0 (remember?). Surely, this begs the question: are Precision Software no longer interested with their amiable little database, or are they completely satisfied with it?

Could it be Superbase Personal is about to be scrapped in favour of Personal v.2? "Personally", I think Precision know when they are on to a good thing and when to stick with it. Nevertheless, although no new version has been announced, there has been a marked drop in price of late; we obtained the review copy from a dealer for **under** £30.

Gathering the facts, we decided it was about time we gave this super little database a run for its money and find out if it really was as good as it is cracked up to be. Precision themselves define Superbase Personal as an entry level, multi-file relational database management system, and who am I to argue with that. It has been designed to be easy to use yet powerful and take full advantage of the WIMP environment afforded by the Amiga. To top that, it is fully upward compatible with the other versions of Superbase, which means that if you decide to upgrade, there is no problem converting files.

Superbase Personal Revealed

At the heart of Superbase Personal is the VCR-like control panel. This has been designed with everyone in mind and makes full use of the WIMP idea. Once a database has been loaded, the records can be: searched one- by-one (a single frame advance) in both directions; viewed quickly like a frame search; or fast wound to the start or end. There are other options available such as Pause and View External File, which I shall cover in due course.

Defining Superbase Personal Files

Designing the fields is the most important and second most tedious job with any database (the most tedious being entering the data). Thanks to some thoughtful design by Precision this has been made as painless as possible, even though the range of possible options are staggering for the first-time user.

Basic options for fields are Text or Numeric, which is normal. Texts fields having a variable length, but in Superbase Personal there is even a semi-automatic date option. For the Numeric fields you are given a massive range of options governing just about everything from where to put the decimal point to how to display an internal maths overflow. By the simple click on another button, any of the fields can be given Required status. These could be essentials such as people's names so that you can not miss them out by accident.

Field Options

Other options include:

Calculation: The contents of this field are calculated according to a formula. Such a field could be for information purposes and contain the sum of the last 2 or more fields for instance. It could even display a discounted price for an item - given the retail price and the discount percentage. Calculations can even include functions like: SIN, COS, TAN, ABS even RND!

Validated: every entry made in this field during editing is checked against a set formula. For example Interest.Rate >= 0 and Interest.Rate <= 15. Easy as that.

External: This field contains the pathname of an external IFF compatible picture file to be displayed by Superbase.

The point of all this is: the whole bundle is displayed on a single requester box. Options are accessed by clicking on the relevant buttons. This brings up a requester for the list of options under that heading. However, you do not have to alter the format unless you choose to.

Above the set of buttons, the list of fields appears in the order as defined with their attributes and formats displayed alongside. If the list becomes too long, you can scroll through it in the usual manner.

"As with most Superbase operations, your hands never touch the keyboard."

Once a field has been added to the database, it cannot be deleted. The only other option is it can only be given deleted status until the file is rearranged. This prevents accidental deletion of fields; restoring a field is a simple matter of reselecting a field type for it. Similarly, it is possible to add more fields to the database at any time.

Information Retrieved

Once the database has been defined, Superbase has a plethora of options for getting the information out again in whatever format you happen to choose. At the simplest level, the fully relational system allows you to define a search "filter" which all records must fit before

continued on page 47

GET YOUR HEAD STRAIGHT!

What would happen if your disk drive heads were out of alignment? Do you know? All that hard work and time inputting information ... LOST.

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People often take for granted the precision engineering which goes into the Amiga disk drive mechanics and the amount of use the average drive gets. Think about it! A typical disk drive will read and write information literally millions of times in its lifespan but still most of us take for granted the basic maintenance required to ensure the accuracy of the drive itself.

The average movement of a disk drive head is about 20mm and there are 80 tracks with a gap of approximately half a track. Each track is only 0.16mm wide. This is precision movement and what if it is not accurate?

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MEDIA LINE CLIP ART

John Walker takes a snip here and a snip there from Free Spirit's artistic offerings

The Amiga has a deserved reputation as a computer that is great for creating graphics. But what happens if you are a lousy artist? Or what if you find drawing with a mouse is, at best, clumsy? You still end up producing lousy art.

The answer to the problem is clip art, which in theory can transform us at a mouse-click into Van Goghs or Leonardos. So far, most of the clip art available for the Amiga has been issued to support particular programs, such as Deluxe Paint, PageSetter or City Desk. Now Media Line has issued the first volume of clip art intended for use with any IFF-compatible software.

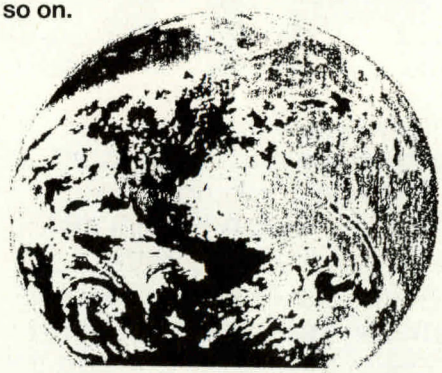
In theory, the notion is a good one; the clip art consists of disks of ready-made drawings that you can either use as they are or alter to meet your needs. In practice, most of the Amiga clip art is also lousy art. Media Line's first collection does little to improve the situation.

Contained on a single unprotected disk, accompanied by two A4 pages stapled together illustrating most of its graphics, are some 200 black and white images in high resolution interlaced format. A Show utility is included, so that you can double-click on the images to see them on the screen. Most are small, around 250 x 120 pixels in size.

Designed by Loren Lovhaug, who is described as the "noted author of books and magazine articles on Commodore computing", it covers a wide range of subjects, none of them well. Ots art is described as "printer oriented", which means that what you see on-screen is (more or less, depending on your printer) what you get when it is printed.

Uses

Media Line's clip art is most useful in desktop publishing, when producing posters, advertisements or newsletters. At such times you need simple black and white line drawings that will reproduce as well as possible. Conventional graphic designers have access to whole libraries of books devoted to reproducing such art. Each book usually covers a specific subject: cinema, dance, monsters, sport and so on.



Amiga users are not so lucky. This collection is a curious mixture of styles, even more curiously presented. The categories range from Film Stars and Holidays to Military, Sport and Funny People. The drawings range from 19th century engravings to inept cartoons and poorly digitised images. It is a rag-bag of the good, the bad and the ugly.

For some reason, much of the art has been cropped in an odd way. For instance, in a Victorian mortise engraving – a style which includes a blank space in which you can put a



message – the very top of the man's head has been lost. In an image of the Earth, the bottom of the globe is missing.

Contents

President Lincoln and the Mona Lisa have been lopped off just below the neck. And a Funny Face has lost its chin. It would have been much better to have provided more complete images and left the cropping to the user. In many examples, too, much detail has been lost in transferring the images from printed originals to computer.

The selection of Film Stars is an indicatiob of the disk's peculiarity. There are six cloudy digitised images, which have the wavy lines of moiré distortion that suggest they were grabbed in real time from a TV or video. The stars, all dead, are Vivien Leigh in Scarlett O'Hara pose, Grace Kelly, Ingrid Bergman, Cary Grant, a pre-AIDS Rock Hudson and Henry Fonda.

I can't see the images being of much interest or use, except to members of their fan clubs. They are not actors who have transcended the medium to become icons, in the way that Chaplin, Bogart, Marilyn Monroe and James Dean have at the hands of the advertising industry.

The blurb on the package claims that "Computers and Scenery are among the various themes included". They are not, although you will find a small tree filed under "Things"" The two-page description of the software states that Gold Disk's Professional Page "does not let you resize any IFF graphic". That is also a mis-statement. You can resize IFF GRAPHICS WITH ProPage as much as you like.

Conclusion

MediaLine's Clipart Disk 1 does not seem to be aimed at any specific type of user. The images have no consistency of style or purpose. Out of the 200 or so included, I'd use no more than a dozen and I suspect that most will feel the same. Anyone with a digitiser could produce better results more cheaply by transferring to the Amiga images from the many volumes of copyright-free clip art in the Pictorial Archive series published by Dover Books.

The disk may contain ready-made art, but it is not very good and, indeed, is no better than the clip art that can be found on the public domain on Fish Disks and similar collections. The Amiga still awaits an instant Leonardo.

J.W.

Price: $34.95. Contact: Free Spirit Software, PO Box 128, 58 Noble Street, Kutztown, PA 19530 (USA). Tel: (215) 683-5609.

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COMMS
A SIZZLING SPECIAL REPORT

Link UP - Log ON - and LET GO!!!

This month, *AUI* goes on line, investigating the fascinating world of Amiga communications. By entitling this section, Link UP - Log ON - and LET GO!!!, we've tried to show the process by which you can speak to other computers worldwide; your serial port is, so to speak, an interactive window on the global electronic village. We decided to bring the village to you by showing you what you can achieve with a small investment and a desire to communicate.

Although there is information here for the uninitiated, there is also plenty for the comms expert. In the following pages, learn more about the serial port and what it allows you to do, read about the popular on line services, link up with a SYSOP, and even find out about the games that you can play via modem. Then once you've read through everything, give yourself a chance at some marvellous prizes by entering the Compunet Competition, in which the answers are based on the material in this section. Or if you are artistically inclined, perhaps you'd like to design the Directory banner for *AUI*'s area on Compunet.

We all know that the Amiga is a unique and special computer, but perhaps one of its strongest assets is its ability to help users create lines of communication. So go ahead, link up, log on and let go - through your serial port, a fascinating world awaits.

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Pictured here is the hardware add-on used with Amiga-Fax

Going Overboard!

Stuart Williams finds fun on the 'phone with some colourful Bulletin Boards

Most of you will have heard the wild tales in the press (not just computer magazines!) of weird computer 'Bulletin Boards' that are dens of iniquity, infested with hackers, purveyors of porn, and secret fascist networks... Well, it will be no surprise to those of you who use the boards regularly that these systems are largely the fantasy of gullible, booze-soaked hacks - with some notable exceptions!

While such systems may tend rather more to the outrageous in the USA, Europe and Scandinavia, with tales of love affairs by Electronic Mail, or even couples getting married (yes, these things do happen!) via such mega-sized systems as PeopleLink, the Source, etc, in the UK at least, the majority of computer Bulletin Boards are pretty mundane fare, simply offering the chance to chat with other casual users and download a little public domain software now and again. Hackers' haunts and sources of those naughty demos you wouldn't show your Granny are few and far between. Having said that, while there might not be as much controversy as some journalists and politicians would have us believe, there's plenty of variety, and a lot of fun to be had amongst these small systems, and when logging onto a bulletin board, you should remember to expect the unexpected...

For the uninitiated, a Bulletin Board is a non-commercial messaging system which you can link up to via the telephone line with your Amiga, a modem, and some terminal software.

Sysops

Many successful boards have been set up on a particular subject, or theme, by their SYSOP (SYStem OPerator), and the way this has been done can create a whole new atmosphere, even a world within a world, on such systems, which can make them a great deal more enjoyable to use. Many of the best boards have a humourous theme, such as the 'Gnome at Home' in London, which is a classic Viewdata system, based on a humourous interpretation of the world of Gnomes, relying heavily on some awful gnome puns and a lot of hard work by the SysOp. On the other hand, a lot of systems undertake to bring a serious air to the telephone network, including a number of religious boards such as the COMPUTERS 4 CHRIST and the ICTHUS (Trinity 3) systems, or boards dedicated to a particular type of user, such as AIRTEL, for aviation enthusiasts, or HAMNET, which is intended for licensed Radio Amateurs. Some of the wackier bulletin boards convey an air of lunacy, as with the LOONY BIN. You'll even find boards of special interest to Amiga users, such as the BITMAP BROTHERS BBS or the MICRODEAL system, as well as 01 FOR AMIGA, the AMIGA BOARD, and TABBS (the board of the Amiga Users Group (UK)).

My personal favourites are those based on a Science Fiction or Fantasy theme, such as the Star Trekkies favourite, ATAVACHRON, or the DWARFEN REALM, GODS, MIRRORWORLD etc.

Access

How do you access these 'Bulletin Boards'? Well, fortunately most of them conform to the simple ASCII (American Standard Code for Information Interchange - now there's a mouthful!) scrolling text system, so the terminal software needed to connect your Amiga's screen and keyboard to the remote system via your modem and telephone line is not complex - you could even write a basic terminal yourself in AmigaBASIC.

There are many Public Domain and Shareware programs available which will do the job - I recommend Comm 1.34 and ACCESS on the Amiga, or Procomm or Telix if you're using a PC or Bridgeboard on an Amiga 2000. All of these are available for a small fee, or even free, though you should bear in mind the Shareware registration fee if you use the program regularly. All of them will allow you to download and upload Public Domain software from and too the remote system with ease. For those with more sophisticated needs, power user terminal programs such as Aegis Diga or Oxxi's A-Talk III have much to commend themselves, with many automatic features, but at a price!

There are few bulletin boards using the Viewdata System (paged colour block graphics and text) as originated by Prestel, but those that do will require special Viewdata Terminal Software, which you will already have if you are a Prestel Subscriber. You should be able to pick up SuperTex, a Public Domain Viewdata Terminal, around the PD libraries, or if you can't get hold of that, Y2, who supply Micronet/Prestel software, have RubyView at £59.95.

That's all you need - feed your terminal with Bulletin Board numbers, tell the program to dial, and off you go! Mind your manners (though you should feel free to join in with the spirit of the board you're using), and remember the essence of bulletin boards - you're there to COMMUNICATE!

Here's a list of some of the more interesting specialist 'theme' Bulletin Boards - why not give them a call and put some colour into your comms?

S.W.

Board Name	Phone No.	Speeds	Hours
01 For Amiga	(01) 377 1358	V21/22/22bis/23	5pm-10am w/d 24hr w/e
Airtel	(0342) 717800	V21/22/22bis/23	24hrs
Alternate Reality	(0352) 85626	V21/23	24hrs
Amiga Board	(0268) 510495	V21/22/22bis	6pm-8am w/d 24hrs w/e
Arrakeen	(01) 738 7304	V21/22/22bis/23	24hrs
Atavachron	(0480) 412884	V23 Viewdata RB	24hrs
Auld Reekie BBS	(031) 663 9924	V21/22/22bis/23	24hrs
Bitmap Brothers	(0245) 413728	V21/22/22bis/23	24hrs
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Boffin Board	(031) 664 2147	V23 Viewdata RB	7.30pm-7.30am w/d 24hrs w/e
Computers 4 Christ	(0926) 428294	V21/22/22bis/23	24hrs
CYMRUtel	(0492) 49194	V23 Viewdata	24hrs
Dwarfen Realm	(0376) 501036	V23 Viewdata	24hrs
Gnome At Home	(01) 888 8894	V23 Viewdata	24hrs
GODS	(01) 994 9119	V21/23	7pm-9am w/d 24hrs w/e
Hamnet	(0482) 465150	V21	6pm-8am w/d 24hrs w/e
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Kybernesis	(01) 673 7294	V21/22/22bis/23	24hrs
Loony Bin	(0703) 787489	V21/23	24hrs
Microdeal	(0726) 65422	V21/23	24hrs
Mirrorworld	(0883) 844044	V23	24hrs

Key to Abbreviations:
V21 - 300/300 baud
V22 - 1200/1200 baud
V22bis - 2400/2400 baud
V23 - 1200/75 baud
w/d - Weekdays
w/e - Weekends
hrs - Hours
RB - Ring once and then Ring Back



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PERSONAL SERVICES

Stuart Williams puts together a user's guide to the most popular subscriber communications services in the United Kingdom

The bewildering variety of commercial facilities available to modem users can prove confusing for the potential subscriber. This article presents an overview of the most popular of the UK services, and the attractions they hold for the Amiga user.

MICRONET

Micronet is the huge 'electronic magazine' based on British Telecom's mammoth nationwide Prestel system, and contains much of interest to the average home computer user; news and views on the computer companies' activities, hardware and software, and general chat, are all well catered for.

Prestel, on which Micronet is located, uses the Viewdata system of forty column by twenty-four line 'pages' made up of simple block graphics and text, in a choice of eight colours plus flashing, similar to the TV 'Teletext' systems. It uses a paged system instead of scrolling text. Prestel and Micronet are a local call to 95% of the UK. Prestel and Micronet are held together by many menus and routes based on keying in numbers. To access Micronet, and download Telesoftware, you need a special Prestel Terminal program, such as Y2's RubyView. On the other hand, you may find some Public Domain libraries stocking Supertex, an Australian Viewdata Terminal program, which will do the job just as well if you do not require telesoftware downloading. Micronet subscribers can now use any speed between 300 - 2400 baud full duplex; impoverished readers will be pleased to hear that they can also connect via a cheap 1200/75 baud manual dial modem - indeed Micronet supply a free GEC Datachat 1200/75 modem as part of a package of RubyView software, 12 months subscription and modem.

Official Micronet coverage of the Amiga is gradually improving, and the majority of Amiga activity is present within the Micronet general Commodore area, 'Solely Commodore', which is mainly structured for the C64, but now has more content of interest to the Amiga owner. The area is excellent, with hints and tips, product reviews) and technical articles, many by readers. One of the most enjoyable aspects of the area, which is typical of Micronet, is the popular and active Letters section. Micronet's 'official' combined area for Amiga and Atari ST users was not at first of the same standard as Solely Commodore, though again, it is gradualllly improving, and is certainly worth a look. Interestingly, the downloadable Telesoftware for all micros is accessed as a 'gateway' or external system via Micronet, and runs on an Amiga 2000!

Micronet's excellent general computer news pages often hold items of interest to Amiga users, and are updated daily during the week. There are also areas where advertisements may be left, and you can also hire your own twenty-six frames, in the Gallery area, as a soapbox for your own interests. There is also the popular multi-user adventure game, 'Shades'. Micronet also includes a number of business oriented information services which, while of casual interest to business users, are of limited use compared to Microlink's more active business areas. Micronet does have the advantage of including access to the Mailbox internal mail system, and a simplified version of Telex, plus the rest of Prestel, which is handy if you're into booking theatre tickets or holidays via your computer!

If you are a hobbyist having a wide interest in computers and would like to be able to communicate with other Amiga owners all over the UK at low cost Micronet should prove to be right up your street. If you are looking for exclusively Commodore activity, however, Compunet may be of more interest.

COMPUNET

Compunet may seem at first glance to be yet another Viewdata system along the lines of Micronet; nothing could be further from the truth. True, they both use a system of information screens or 'pages'; they both also employ a system of numbers and keywords to identify areas of their database. Here, though, the similarity ends.

Compunet not only uses sixteen colours, it also has a much greater variety of shaped graphics characters which enable more detailed and attractive page designs to be presented to the user.

All you need to access Compunet is an Amiga, modem and the Compunet Terminal software, which is distributed as Shareware as well as direct from Compunet. As the system was originated for use by Commodore 64 owners, the sophisticated terminal emulates the C64's forty column block graphics and colours, using the Amiga's hi-res sixteen colour mode to display the Compunet in several windows.

The Compunet structure is much closely resembles a tree-like structure rather like the disk directories or 'drawers' on the Amiga. Moving through the system is merely a matter of pointing and double clicking with the mouse!

One of your terminal windows shows the directory structure through which the user is moving, while another shows the actual information which has been downloaded into your computer. Unlike Micronet, where pages are simply displayed for viewing, Compunet downloads its pages into the terminal's editor, where the information may be saved, printed or simply left to be overwritten by subsequent pages. The editor is multi-tasking, and allows the user to edit and prepare pages of graphics and text on or offline, even when downloading a program (memory allowing)! These pages can then be transmitted to other Compunet users, or uploaded to the system. If the area you wish to enter has a 'keyword' (normally the name of the subject or title of the section) or known page number, you can type this shortcut in and go straight there!

Interestingly, Compunet is fully error checked, which means that you should never get a garbled page even on a noisy 'phone line! Unfortunately, this works by causing any corrupted data to

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be re-sent, which inevitably entails a decrease in speed - it seems that you can have your cake and eat it, but slowly!

What's on Compunet for Amiga users? Well, apart from the new ***AUI*** Compunet Contact Zone (see ***AUI*** August) there are many club areas, including the Amiga User Group and the Compunet Computer Club, plus a wide variety of Special Interest Groups relating to specific subjects or aspects of computing or other hobbies. The great advantage of Compunet is that the system is very interactive, and much of the content is written by the enthusiastic subscribers themselves. The system is very much like a huge bulletin board with graphics! Users are actively encouraged to contribute, and if you're considering starting up a bulletin board system yourself, but are shy of the necessary capital, setting up your own area on Compunet could well prove a very acceptable alternative!

For the latest in micro news, the international 'Newsbytes' service is available on Compunet; for those who prefer to chat, or are addicted to Multi User Games, there is Federation II, a space trading game, and Partyline, a chatline service. To use these two you have to pay a time charge of £1.50 per hour for Federation II, and £1.00 for Partyline.

There are many Public Domain programs and demos to download for Amiga users.

If you're an Amiga user into communications, and you're looking for a commercial service withthe fun and interactive elements of bulletin boards but with the advantage of cheap local 'phone rates for 95% of the UK, then Compunet could be the place for you. As far as the Amiga user is concerned, Compunet really is the live one!

MICROLINK

Microlink is undoubtedly the most businesslike of all the communications services available at an affordable cost, and is regularly frequented by business users, hobbyists and journalists of all descriptions.

Currently based within the British Telecom Gold Electronic Mail system, it will soon be moving onto the international Istel Infotrac network, and I'll be covering the considerably expanded and re-launched system in more detail after1st October. Like non-commercial Bulletin Boards, Microlink uses simple ASCII scrolling text to display its information; the great advantage of this type of service is that not only can you use cheap (or free!) PD terminal software, you can also use highly sophisticated terminal programs such as A-Talk III, which greatly increase the efficiency of your use of Electronic Mail (Email) services by automating their use to a great degree.

There are a wide range of facilities, particularly for the business user, who will find this system a real boon. Of most interest is Electronic Mail, the ability to send long messages between users of the system, either typed in online, or sent as text files prepared offline in your favourite wordprocessor.

You also have the facility (at extra cost) to send Telexes worldwide to any standard Telex machine (or Telex linked Email service), and also to send letters prepared as text files on your computer to appear on any standard FAX machine! Both Telex and FAX services are essential tools in today's business world, and using the Microlink service could prove a lot cheaper than investing your hard-earned capital in FAX and Telex machines! Of course, it is not possible to send images via the Microlink FAX service, so if you want to send plans or drawings, it's down to the FAX bureau!

There are uses of Microlink which will appeal to the home user, such as the Microlink Bulletin Board. There are a growing number of Amiga users, but due to the business orientation of the service, the majority are owners of IBM compatibles at the moment. For those with interests outside computing, there are many other discussion areas, including family history and Science Fiction! As with Micronet, there is a multi-user game, the ubiquitous Shades.

Microlink is of greatest interest to the business user, as well as the serious comms enthusiast. It should be looked upon as a reasonably economical way to obtain a professional Email, Telex and FAX messaging service. Since off-peak use costs consist mainly of charges for data transfer, heavy users doing a lot of file transfer will find Microlink costing rather more than the 'fun' services to use. Having said that, there can be no doubt that if you need the facilities, a Microlink subscription is definitely money well spent. However, I would advise potential subscribers to await D-Day on 1st October and watch the pages of ***AUI*** for in-depth info on the re-launched service before signing up. Costs should be roughly the same as the present service, but you should no longer need to pay for BT's PSS service, as the Istel network has 95% local call access in the UK. Facilities should also be greatly expanded, including access to many more databases, especially outside the UK, as well as a phototypesetting service!

COMPULINK INFORMATION EXCHANGE (CIX)

CIX system is run by the Compulink User Group, a commercial club whose main claim to fame is their enormous library of (mainly MSDOS) Public Domain software. It owes much to the philosophy of the 'bulletin board' type of non-commercial remote computer system, and retains the friendly, 'clubby' feel of the hobbyist bulletin boards. CIX is a multi-user, multi-port dialup system along similar lines to the American 'BIX' system.

CIX is not intended to be a huge database of information (although it does contain the international 'Newsbytes' news files), or an international electronic mail service. It provides the opportunity to get together and have 'conferences' on computing and other topics.

This multi-user Unix based system allows chat between users and also allows comment and expression of opinions via the conferences, sophisticated versions of the message areas found on bulletin board systems. If you feel a subject is missing, then you are quite welcome to stand on your soapbox and start up your own conference!

The Amiga has several conferences. Many of the Amiga software developers have CIX accounts. If you want the latest news about the Amiga family, then short of dialling the US, CIX is the place to be.

While CIX is not an Email service, it does have an internal mail system, allowing messaging between CIX users.

CIX uses a scrolling text system; as with Microlink, this means that you can use terminal software from the Public Domain or sophisticated commercial packages if you wish, with the same advantages. CIX accepts modem transmission speeds from 300 to 2400 baud full duplex, including 1200/75 baud, with full MNP error correction if your modem has the facility.

Since CIX is based on a London number, access will be cheaper for those within local call range of the capital. Those on low-cost routes (check your 'phone book) to London will likewise not find charges too expensive. However, if you have to dial normal long distance, you may find CIX a expensive to use for long periods. The system does, however, have Mercury X.25 data line access from most parts of the UK, and this could provide a significant saving if you anticipate regular long distance calls.

Who will benefit most from CIX? The professional or serious Amiga user into programming and hardware or software applications, the comms enthusiast, and the active hobbyist will love it. The games fanatics, however, will find little to interest them. If you want to chew the fat with those in the know, CIX is probably the place for you!

These, then, are the most popular commercial services in the UK. Why not join up, log on, and link up to the outside world? ***S.W.***

Yakety-yak

In today's world of computer communications, a modem could almost be considered a vital piece of equipment - Mark Smiddy looks at the options

To access any sort of remote BBS (bulletin board system) you will need a modem, but why? The term "modem" is a contraction of the two words MODulator DEModulator - which probably mean very little to most people unless they have some background in electronics or radio. At its simplest level though, a modem is the "black box" which connects your computer to your telephone line - and therefore, you with the outside world.

When it comes to choosing a modem you will have to decide on two things: first, what you want to do; and second, how much you want to pay. Considering modems start from around £50 and go on climbing - you could pay in excess of £500 - your budget is a very important consideration.

For instance, if you only intend to access Micronet then you could take advantage of their free modem offer when you take out a full year's subscription. Make no bones about it though, anything for free is going to be, well rather basic. Nethertheless, the spartan little Micronet offering is quite capable of accessing all the V23 based BBSs - not just Micronet.

How do Modems Work?

Basically, modems divide into two groups determined by the way they connect to the telephone system: direct connection or acoustically coupled. Of these, the latter are becoming increasingly scarce because they are often expensive and always difficult to use. They work by holding the reciever in a pair of rubberised cups and communicating by sound! Tandy (Radio Shack) used to produce about the best - but frankly they should all be avoided.

Most of the modems you are likely to come across are of the other type, direct connection. The problem with these is they connect directly to BT's system and therefore, like all third party telephone equipment, must be approved by them. Several designs are on sale which do not have the BT approval and therefore we cannot vouch for their safety; they will not hurt you but a BT engineer might end up being roasted!

Finally, if you want to use a direct connection modem, you must have the correct type of phone sockets fitted. If you have either no sockets at all or the older "jack" style these will have to be changed by a BT engineer; at least the main one does, you can fit extra extensions yourself quite easily and cheaply.

Services

What you must consider next is what sort of services do you want to access? There are three transmission speeds - known as baud rates - in wide use in the UK. These are: 300/300 (V21), 1200/1200 (V22) and 1200/75 (V23). Also, less common is the newer 2400/2400 (V22bis).

Most Viewdata based systems like Micronet and Compunet can be accessed at 1200/75 or V23. Similarly, some of the larger BBSs like Microlink (via Telecom Gold) also features access at this low speed. The advantage of V23 modems is their cost - cheap. However, they have one distinct disadvantage, they can only transmit data at a very slow rate. This becomes a problem when you want to send (upload) large files to the BBS; while 75 baud is faster than any typist we have seen, it is inherently unsuitable for sending information.

A better option in this case would be to go for a modem which offers some sort of dual standard - the Pace Linnet dual-speed is a good example. This offers all the benefits of V23 plus the added advantage of being able to send and receive data at 300 baud (V231).

For even longer files: long letters, programs and the like, the only real option is to save up for a modem featuring 1200 or even 2400 baud full duplex (V22 or V22bis). These types can send and receive data at very high speed indeed. A good example of this is the Pace Linnet Multi-Speed which features V21, V22 and V23 plus many other features.

There are two main problems with these higher speed machines: first they need very clean telephone lines to work properly; second, some BBSs charge extra for the privilege of using the higher speed. A few - like Microlink - charge by the character block sent or received. This gives high-speed modem users the advantage of cutting charges for telephone calls for accessing the same amount of information. Altogether a much fairer system.

Features

Once you have decided on speed - you must ask yourself about other features, which ones do you actually need?

Modems divide here into three main groups: dumb - you do all the work; semi-intelligent - you do some of the work; intelligent - the modem does everything short of making the tea.

Dumb modems are quite sufficient if all you want to do is to access Micronet occasionally. With these you have to dial the number yourself, listen for the high-pitched carrier tone, then flick a switch to let the modem take over. Microlink's own modem is of this genre.

Semi-intelligent modems are just a marketeers idea of downgrading an intelligent design and charging more for the better version. These types often include features like auto-dialling - the modem dials the number for you - but precious little else.

Intelligent modems are a delight to use because they do everthing for you. Pace's Linnet Multi-Speed unit for instance can auto-dial, auto-answer (for running your own BBS), even scan for the baud rate of the computer trying to communicate with it.

Intelligent modems feature an onboard microprocessor which can be quite powerful in some cases. Typically you can communicate with the modem in a simple language - often known as a command set. There are several different sets around but the most popular (therefore the one to go for) is the Hayes command set - sometimes called the AT codes. Some units can even give online help at any time.

Quite often too, Amiga communications software will be pre-configured to use Hayes commands and will need to be modified if your modem uses a different standard.

Other features worth looking for (if your budget can stand it) are: error correction - expensive and only offered by a few systems; carrier strength meters; call monitoring; and voice recognition;

To get you going we recommend the following: Demon 2 (£79.95) V21/23; Pace Linnet (£175) V21/V23 + Hayes; Miracom WS3000 (£339.95) V21/22/23 + Hayes (V22bis is an option). Further information on these and many more models can be found in The Directory, available from your newsagent.

M.S.

S.C.C. MAIL ORDER

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On Line Games

Simon Power looks at games that 'take two...'

A variety of games on the market are presently offering the option of using a modem link-up via the serial port, giving the opportunity for two players to compete through two machines and/or across telephone lines. The games which accommodate the modem have impressed many people by performing better while playing through the modem, than in normal solo playing.

POPULOUS

One of the hottest games to emerge from the Electronic Art's camp this year is Populous. Playing via the modem gives the opportunity for each player to take on the role of a God. You and a friend (???) compete as the deities of two nations for land in an attempt to firmly establish your people as the ruling tribe. As you flatten or create land, giving your nation the opportunity for your nation to build new houses and grow new crops, you can conjure up acts of Mother Nature and inflict your opponents forces with storms and floods, volcanoes or earthquakes. Populous is available for the Amiga and retails at £24.99.

FALCON

Imageworks (Mirrorsoft) have just released a Mission disk that supplements their Falcon flight simulator, which was also released earlier in the year. Your mission is to negotiate nine sectors in your versatile F-16 Fighting Falcon. Two of the sectors are friendly while the others offer a selection of bridges and ammunition dumps that you must destroy.



No flight simulator would be complete without the confrontation of enemy planes, and this one doesn't let you down, offering the chance to out manouvre and out shoot four Russian Migs as they attack your H.Q.

When you compete via the modem against another player, you are no longer restricted to the confounds of the normal solo playing game. As well as trying to complete your mission, the threat of the other player's jet attacking looms overhead. The Mission disk gives you the opportunity to fly your F-16 through a variety of new landscapes. Faclon and the Falcon Mission disk are available on Amiga and PC retailing at £29.00 for Falcon and £19.99 for the Mission disk.



Future Release

There is a possibility that two games soon to be released from Activision will accommodate a modem feature. Powerdrift, the successfull arcade coin-op in which you have a choice of driver and circuit, looks set to make a big impact on the game market if the designers manage to re-capture the style of the 3D block graphics seen in the arcade version. Powerdrift is due to hit the shelves around Christmas and will be available on all formats except PC.

The second game is another flight simulator offering a choice of planes from which to complete your mission. Bomber Tactical Air Combat is the first project from Leeds-based "Vektor Grafix" who have been working on it for the last nine months. It offers six formats including an F-4 Phantom and a Mig-27 (a Russian low level attack plane). Bomber is due out by the end of September, and will be available on all formats.

Parallel Port Games

While most modem link-up games work via the serial port, leaving the parallel free for a printer or any other peripheral devices, Stuntcar, the soon to be released game from Microprose operates only through the parallel port. Microprose tell us that the serial port cannot offer enough speed to make the game playable. Using the modem with Stuntcar will enable you to link ST - Amiga, and Amiga - Amiga. Stuntcar will be released in September and will retail for £24.99.

S.P.

Amiga Graphics On The Air

Take a trip through the world of the Amiga and radio with Stuart Williams

Take a pinch of Amiga graphics know-how, add a dash of video expertise, and garnish the dish with a sprinkling of amateur radio, and what have we got? Amiga graphics on the air, that's what!

Amiga Radio Fax

Have you ever wondered how the amazing satellite pictures, weather maps and news pictures are transmitted around the world? Ever wondered what it might be like to run your own TV station? Have your toes curled up at the thought of the expense? Let them shrivel no longer - the day of the Amiga has come to amateur radio and television!

You can now harness the Amiga's powerful graphics and send them flying through thin air. There are two main systems available to do this. Both of them are in production by ICS Electronics of Arundel, West Sussex. The first is the Amiga-Fax system.

Amiga-FAX was created by Volker Wertich, who may be known to some of you as the West German author of ANCO game 'Emerald Mine'. His brother, who is a Radio Amateur or 'Ham', asked Volker to write a program to allow him to run a facsimile station from his Amiga. In response, he not only produced a remarkable piece of software, but also a hardware interface for the Amiga, combining the two to produce an effective and reasonably priced package which is the first and so far the only system of its kind running on the Amiga.

"The layman might look upon it as a combination of a scanner and thermal printer with a high-speed error correction modem."

The system used to send and receive these pictures is common in modified form in business and the publishing industry; it is called 'facsimile' or 'FAX' for short. The layman might look upon it as a combination of a scanner and thermal printer with a high-speed error correcting modem. The original systems (which you may have seen in old movies) commonly used a rotating drum and an optical sensor which scanned a document attached to the drum, converting the black and white areas of the picture or document into audio tones modulated on a carrier tone. These were then transmitted along the 'phone lines to a remote receiving machine.

The principle used in modern FAX machines is the same, though they are much more compact these days, and often scan on a flat bed in similar fashion to a photocopier. Unlike commercial FAX, which is a popular business tool for sending and receiving documents, orders, etc., radio FAX allows the transmission and reception of pictures, documents and diagrams via the airwaves.



This has both advantages and disadvantages; while it is obviously a lot cheaper to run (no telephone bills!), it is more easily interfered with and intercepted or listened in on. On the other hand, it is possible to broadcast, for instance, weather maps all over the world to ships at sea with FAX facilities on board. Such map transmissions may also be accompanied by re-broadcast METEOSAT weather satellite pictures, downloaded from weather satellites and put out again as long distance low frequency radio signals (See **AUI** July, page 11).

Perhaps the most interesting aspect of the Amiga-FAX system is that it provides the ability for licensed radio amateurs to transmit and receive their own FAX messages, comprising graphics and text created with their Amiga, or even digitised or scanned IFF files!

If all you want to do is listen in on some of the weather map stations, news agencies, etc, then you will need a good quality short-wave receiver, with as low as frequency coverage as possible (down to 100khz if possible, though many signals are available higher up the spectrum), in addition to the AmigaFAX system and of course your Amiga! A tranny with short-wave bands is no use at all for this kind of job, as it cannot resolve a clear enough signal, so expect to pay £100 plus for a second-hand receiver, or £350-£1500 for a good new all-singing all-dancing model model if you are really fussy. Plus, of course, an aerial (Antenna to our Transatlantic readers!), which can be as simple as a piece of copper wire strung the length of your garden.

"If you wish to transmit pictures using AmigaFAX, then you will have to don your thinking cap and become a 'radio amateur' or 'ham'."

Hamming It Up

If you wish to transmit pictures using AmigaFAX, then you will have to don your thinking cap and become a 'radio amateur' or 'ham'. This not as difficult as many would have you believe, as many schools and colleges organise evening classes, maybe one night a week for six or nine months, specifically for the Radio Amateur's Exam. These are normally extremely cheap or even free if you are unwaged. You MUST pass this exam before you can acquire a Class B License, which entitles you to the use of the internationally allocated VHF (Very High Frequency) and UHF (Ultra High Frequency) amateur bands. If you wish to use HF (High Frequency or Short Wave) bands, then a further morse test must also be taken, which will entitle you to a Class A license if passed, but this is not essential, as there is plenty of activity on the frequencies allowed to Class B Licensees.

You will also need to purchase a transceiver (available from around a hundred pounds upwards second hand, more if new, or you can make one yourself if you have the expertise and equipment!) and aerial system. Local radio dealers and amateur radio clubs are a good source of advice. Your local library will have a list of clubs in your area. While this may all seem a lot of effort, remember that you also have access to all the other areas of amateur radio activity, including Amateur Television.

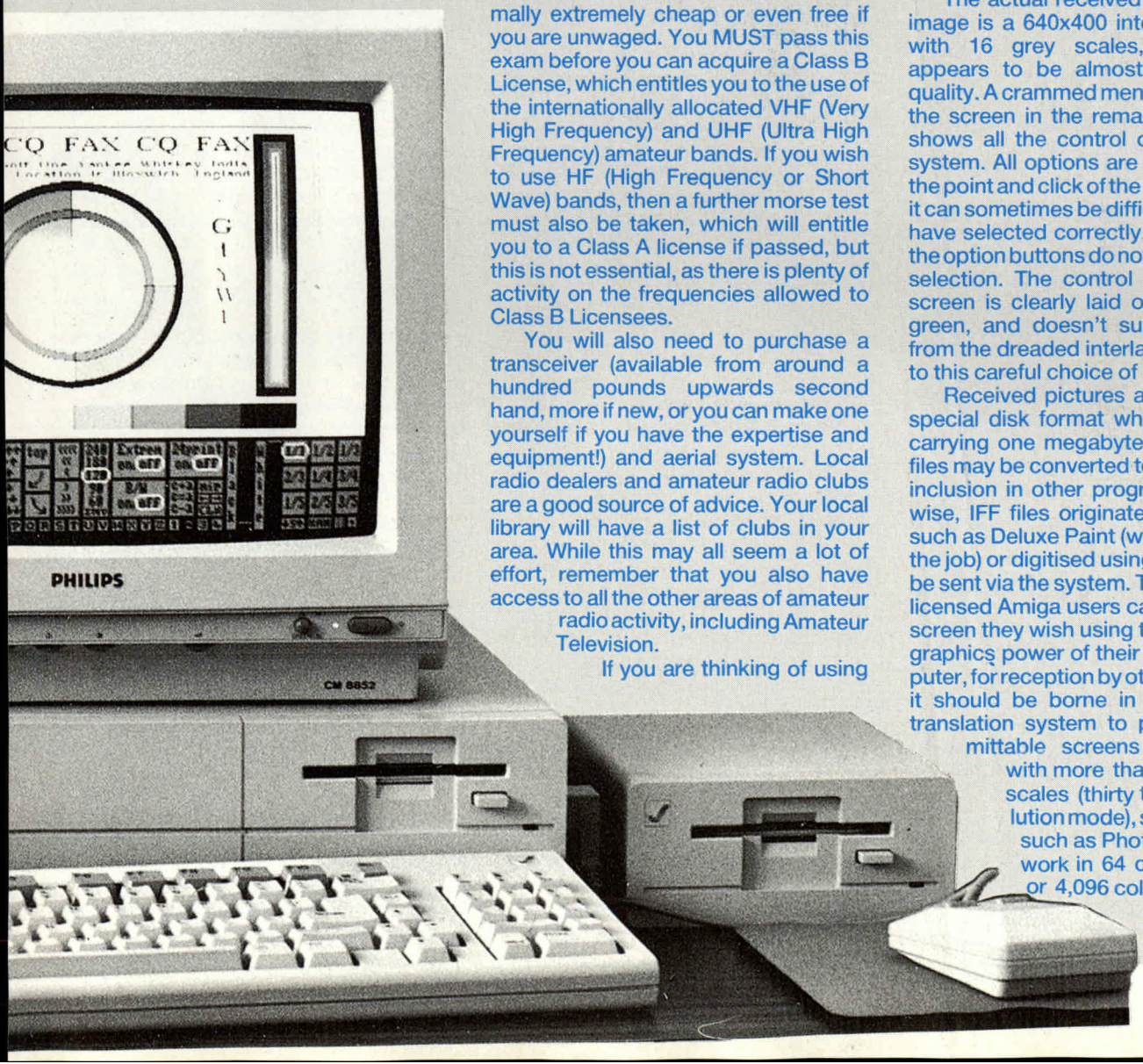
If you are thinking of using AmigaFAX, or indeed any other kind of data transmission, on Citizen's Band (CB) Radio equipment, then forget it. Not only is there no-one else using such equipment on CB, it is illegal to transmit anything other than speech on such systems anyway!

Software and Hardware

The AmigaFAX software uses the 640x512 interlaced PAL screen on European/UK Amigas, and is compatible with the A500, A1000 and A/B2000 models, with a minimum of 512k of RAM, and takes advantage of any additional disk drives. The interface, which is now cased (mine is an early version with a bare circuit board), plugs into the Amiga's parallel printer port, and connects to the receiver or transceiver's extension speaker or headphone socket for reception, and the Amiga connects from the sound outputs at the rear of the computer via the microphone socket on a transceiver for transmission, which is by modulated audio tones. It is of course essential to specify which model of Amiga you have when ordering, as the parallel port gender differs between the A1000 and the A500 or A/B2000.

The actual received or transmitted image is a 640x400 interlaced screen with 16 grey scales, giving what appears to be almost photographic quality. A crammed menu at the base of the screen in the remaining 112 lines shows all the control options for the system. All options are selected using the point and click of the mouse, though it can sometimes be difficult to tell if you have selected correctly, since most of the option buttons do not flash to signify selection. The control section of the screen is clearly laid out in black on green, and doesn't suffer noticeably from the dreaded interlace 'flicker' due to this careful choice of colours.

Received pictures are stored on a special disk format which capable of carrying one megabyte of data. Such files may be converted to IFF format for inclusion in other programs, and likewise, IFF files originated in programs such as Deluxe Paint (which is ideal for the job) or digitised using DigiView may be sent via the system. This means that licensed Amiga users can transmit any screen they wish using the impeccable graphics power of their favourite computer, for reception by others! However, it should be borne in mind that the translation system to produce transmittable screens cannot cope with more than sixteen grey scales (thirty two in low resolution mode), so art programs such as Photon Paint which work in 64 colour half-brite or 4,096 colour HAM mode are unsuitable. Fortunately,



cond. on page 36

continued from page 35

there can be few Amiga users who do not have Deluxe Paint, in one version or another! The transmission screen shown on the Amiga A1000 in the accompanying photographs was produced using Deluxe Paint 1, using the SPREAD option to set up a sixteen grey scale 640x400 interlaced screen, thought the translation program will of course convert colour pictures to grey scales for transmission as well.

Printer support is included for 9 and 24 pin EPSON FX and LQ series (which includes most other decent dot matrix printers, including NEC and Panasonic), and includes the possibility of printing full-width weather maps in multiple strips, enabling printouts of up to 3,840 dots per line. this kind of high resolution map may be shown on screen in strips also.

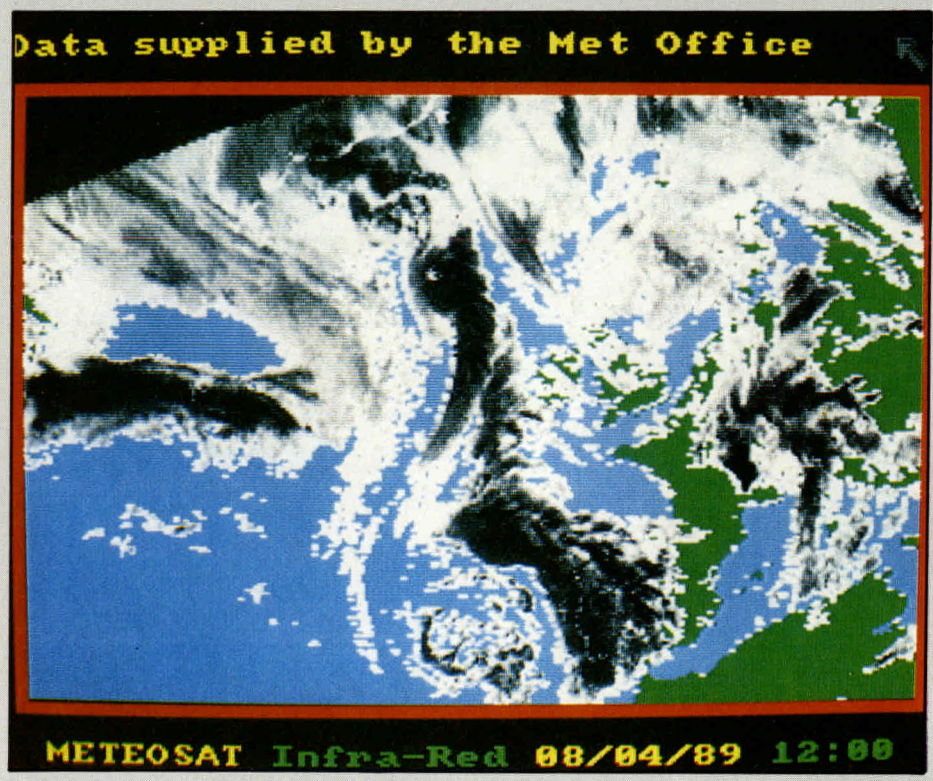
In practice, the system works well, though it is perhaps not up to the standards of a dedicated radio FAX unit, and is heavily dependent on the quality and filtering of the receiver used. With typical amateur radio transceivers, under good conditions, results are excellent. The interface, which is supplied with a detailed but complex manual, program disk and IFF conversion disk, would benefit from some in-built audio filtering for those of us with less expensive receivers, as well as a printer pass-through port, but no doubt this would shove up the price. The AmigaFAX system is available for £99.95 exclusively from ICS Electronics.

Amiga Amateur Television

I mentioned Amateur Television earlier; you will be pleased to know that ICS Electronics are now beta-testing an amateur Slow Scan Television system (SSTV) for the Amiga! What is amateur television? Well, while you may not see much in the way of conventional entertainment on the Amateur Television (ATV) frequencies (use of which is again covered by the Class B Amateur Radio License), there is plenty of fun to be had in this fast growing activity! What's more, your Amiga can be a great asset in all aspects of ATV.

Amateur Television itself is not a new hobby, and indeed the popular British Amateur Television Club is forty years old this year! Due to the availability of low-cost video equipment in recent years, use of ATV systems is increasing all the time.

It is not necessary to spend a fortune on equipment, as a second-hand security camera will work well, and if you have a digitiser you can send pictures of yourself using the ICS Slow Scan Television software upgrade to the AmigaFAX system. Alternatively, you can just purchase the SSTV system and interface on its own if you have no interest in FAX. Naturally, if you already have a colour camcorder and colour digitiser, or indeed just want to send colour pictures, perhaps with your callsign and station details, you can do so with the Amiga SSTV unit.



Slow scan television systems build up the picture gradually in a series of scans, as you might expect. If you want to get into more conventional Fast Scan TV, you will need specialised equipment costing several hundred pounds, in addition to your radio gear. However, the great thing about using an Amiga with Fast Scan is that you will be able to knock other radio amateurs off their seats by sending them your fabulous Amiga animations - no other computer used in amateur radio has the power to do this! Try animating your callsign in 3D in glorious Amiga colour and wait for their jaws to hit the floor!

Amateur TV transmissions tend to be found in the UHF bands, where there are more frequencies available; this is necessary due the wide bandwidth required to send television (particularly Fast Scan colour!) signals. The 70cm band is the most popular for this activity, and standard transceivers are easily available, both new and second hand, from around a hundred pounds upward. I should have the Amiga SSTV package for review from ICS in the near future, so watch this space.

The Amiga Weather Station

A system which should be available soon, once again from ICS Electronics, which will allow you to tap in to the METEOSAT weather satellite transmissions, which you may have seen on television.

No more hoping that the weather man has got his forecast right - you will be able to see the weather in action live from orbit! This will require a special software and interface package, plus a METEOSAT receiver. ICS will be selling a suitable receiver (price to be announced), so don't worry if you don't have the necessary gear already. The pictures downloaded from the satellite should be able to be animated, so you can see the cloud systems in action.

This sort of equipment could prove to be ideal for school projects, or even yacht clubs, in conjunction with official weather bulletins, and the weather maps received via Amiga FAX!

As you can see, then, there's plenty to do with your Amiga in radio. Why not buy a receiver or take the Radio Amateur's Exam and have a go yourself? Who knows, there may be an Amiga transmission beaming through your living room at this very moment - plug in and turn on to Amiga graphics on the air!

S.W.

Price: AmigaFAX £99.95, Amiga SSTV and METEOSAT: (Price TBA)

Contact: ICS Electronics, PO Box 2, Arundel, West Sussex, BN18 ONX. Tel: 024 365 655.

Amateur Radio: Radio Society of Great Britain, Lambda House, Cranborne Road, Potters Bar, Herts, EN6 3JW.

Amateur Television: SAE to British Amateur Television Club, Dave Lawton, Grenehurst, Pinewood Road, High Wycombe, Bucks, HP12 4DD. Other Servicves: Microtext Teletext Adaptor for receiving weather satellite pictures, £124.80 + VAT. Contact: Microtext, 7 Birdlip Close, Horndean, Portsmouth. Tel: (0705) 595694.

The RS232C Connection

Stuart Williams explains the 'ins and outs' of the Amiga serial port

When you get down to the hardware level, there really is only one standard recognised by computer manufacturers all over the world; the RS232C (or as it's fondly known in Europe, V24!) serial communications port.

The great advantage of the good old RS232C is that it enables owners of RS232C equipped micros (and minicomputers and mainframes) to link their machines together and transfer information between normally incompatible computers.

There are also a number of other peripherals, most notably modems and serial printers, which also require use of this port; there are even some cheap networking systems which use the RS232C! Before we get involved in the trials and tribulations of linking two micros together and actually transferring information, it will be profitable to discuss the connections available from the RS232C serial port itself.

The main standard for serial ports, which as I said is RS232C, or occasionally referred to as V24, is fully implemented as 25 lines, normally in the form of a 25 way 'D' type plug and socket combination. Depending largely on the whim of the computer manufacturer, you may find a 'male' or 'female' socket on your computer - in the case of the Amiga, the A1000 has a 'female' socket (25 holes), and the Amiga 500 and Amiga 2000 series have a 'male' socket (containing 25 pins). Naturally, the plug on your connecting cable should be of the opposite configuration to that of the socket (i.e. female socket to male plug, and male socket to female plug). The other end must of course, match the gender and connections of the peripheral or computer to which you wish to connect.

While changing the gender of the ports after the A1000 may at first seem daft in the extreme, it does have a certain logic in that, superficially at least, it is much simpler to acquire a 'standard' IBM type RS232C cable for the A500 and B2000 than it is to get one for the Amiga 1000. Serial port gender is an endless source of confusion for the user who is purchasing a device such as a Midi interface, which works on the serial port, and commonly you have to pay extra for a 'gender changer' to use such devices on the A1000 - this is of course good news for those who manufacture gender changers! If you are the owner of one of the two current machines, however, it should be possible to buy your cable 'off the shelf' from any store selling IBM compatible equipment. In practice, you should ensure that only the pins required for communication are connected, as the Amiga has a number of non-standard voltages coming out of its serial port on normally unassigned pins - while this is great for powering Midi interfaces, it won't do other computers, modems etc. (which may have these pins connected) a lot of good! Fortunately, many of the RS232C connections can be dispensed with, as we shall now see.

"If you look at an RS232C plug, you will see that pins or holes are placed in two rows, one above the other."

If you look at an RS232C plug, you will see that the pins or holes are placed in two rows, one above the other (see diagram). The top row is normally numbered from 1 to 13, the bottom row from 14 to 25. Take note that the direction of numbering differs according to the gender of the plug, and ensure that you check this before making any connections! The majority of the pins that we are interested in are along the top row, and are numbered as follows:

1 Frame protective ground (GND or earth)
2 Transmitted Data (TX)
3 Received Data (RX)
4 Request to Send (RTS out)
5 Clear to Send (CTS in)
6 Data Set Ready (DSR in)
7 Signal Ground (GND)
8 Data Carrier Detect (DCD in)

Along the bottom row, there are a small number of pins that are occasionally used, for the benefit of modem control:

20 Data Terminal Ready (DTR out)
22 Ring Indicator (RI in)

In fact, for all normal uses of your Amiga in communications (with the asynchronous data transfer protocol used between most micros and mainframes), you will find that you will need to use no more connections than these; it is often possible to get away with far fewer, as we will see in a moment. Those of you who have experience with IBM and similar mainframe computers will also have come across the more efficient synchronous protocol system, which does use some of the other pins for timing, but you are unlikely to need these, and indeed some of these extra pins are used for other purposes on the Amiga, as you will see from your manual.

Pin Explanations

If you are reasonably handy and have a soldering iron with a fine tip, it is simplicity itself to make up your own serial cables, as all the parts will be available from your local Tandy electronics store, or indeed mail order firms such as Maplins or Cirkit. A description of the function of each connection is therefore in order:

Pin 1, Frame protective ground or earth, is intended for the electrical protection of your equipment in the usual manner. While it is implemented on the Amiga, and is often found on modems originating in the United States of America, it is

not always used on equipment of UK and European origin; while not essential, it is probably a good idea to connect it if it's provided, just in case! There are no mains voltages running through your Amiga, but it could come in handy if you get a power surge or are struck by lightning! Interestingly, a few manual dial modems manufactured in the UK, notably Kirk's Enterprise (no relation to the spacecraft!) and other similar models by that firm (often found under other company names), actually use this pin for the same function as pin 7.

Pin 2, Transmitted Data, is of course used for outputting data from the Amiga's serial port to the external device. Through this connection, your data is transmitted SERIALLY (ie one BIT at a time, accompanied by control BITs, which we shall discuss later). In the case of a modem, this will be a direct connection from this pin to the corresponding pin on the modem, as it is in principle a modulated extension of the serial port; if you are connecting to another computer direct, however, you will need to connect pin 2 on the Amiga to the Received Data pin on the other computer, to enable the data transmitted by the Amiga to enter the other computer and be interpreted. The transmitted data pin is, naturally, essential to any form of communication via the RS232C port, and should not be left out of your cable.

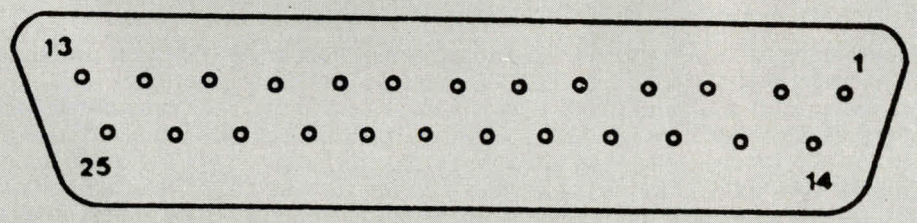
Pin 3, Received Data, is likewise the other essential RS232C connection. As you might expect, all data transmitted to your Amiga enters the port at this pin, and is then interpreted by your control software. Again, all data is input serially, a BIT at a time, accompanied by control BITs. As with the TX (transmitted data) connection, if you are connecting your Amiga to a modem, you will connect pin 3 on the computer to the Received Data connection on the modem. In connecting the Amiga directly to another computer, or indeed many other devices, it will be necessary to connect pin 3 to the external devices' transmitted data pin, to enable the flow of data from that device into the Amiga.

Pin 4, Request To Send, or RTS out, is a control signal, used by the Amiga to enable 'handshake' or hardware control of data flow to the external device; in the case of a modem, for instance, the enabling of the RTS pin on the Amiga would inform the modem that the Amiga wished to send data. If the modem was ready to receive data from the computer, it would then activate its Clear to Send out pin, to tell the Amiga it could now send data to the modem! Unlike Transmit (TX) and Receive (RX), Request to Send is not essential, and indeed many communications programs have specific options to ignore RTS/CTS flow control altogther, as flow control is often implemented in software. On the other hand, many printers with RS232C interfaces depend heavily on hardware 'handshaking' to control data flow, and this should be checked before making up your cable.

Pin 5, Clear To Send, or CTS in, is the corresponding control signal to Pin 4, Request To Send out; again, it is a hardware 'handshake' flow controller, and is used to inform the Amiga that the external device will allow the computer to send data to it. It is connected to the CTS pin on the modem, which when activated will indicate this to the computer. In some modems, CTS is permanently activated, and thus indicates that it is always ready to accept data. On other modems, often with fewer pins on their interfaces (notably cheap UK manual 1200/75 baud modems such as the Prism series), this pin is not included. Instead, Data Carrier Detect is provided, and in some cases can be used to the same effect, allowing the data to flow from the computer as soon as a carrier is detected. Clear To Send is not essential, but it is useful, and should be connected where it is available.

Pin 6, Data Set Ready, or DSR in, is intended to notify the computer that the external device is ready to communicate with it; since this function is often made redundant by the use of Clear To Send, it is rarely used, and can normally be ignored; however, if you find you are having problems, and the connection is available on both the Amiga and the

RS232C SERIAL INTERFACE



Pin No.	Name	Abbreviation	Direction
1	Frame Ground	FG	n/a
2	Transmitted Data	TX	OUT
3	Received Data	RX	IN
4	Request to Send	RTS	OUT
5	Clear to Send	CTS	IN
6	Data Set Ready	DSR	IN
7	Signal Ground	GND	n/a
8	Data Carrier Detect	DCD	IN
20	Data Terminal Ready	DTR	OUT
22	Ring Indicator	RI	IN

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Access

VISA

ARCHIP

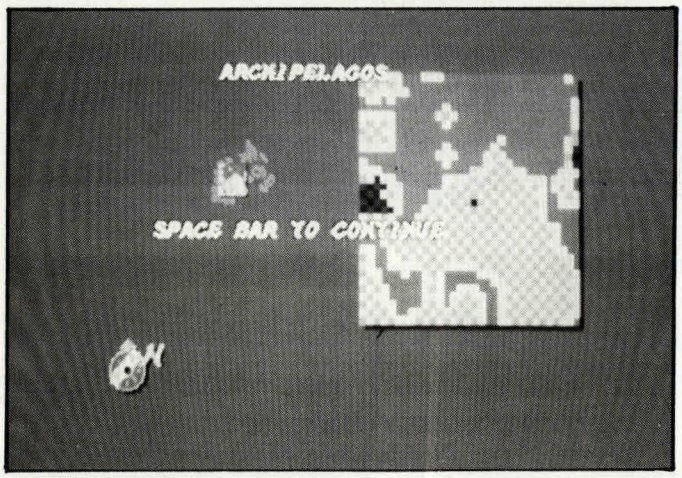
Logotron

Yes folks, play this game and your feet will not touch the ground! Which is, as a matter of fact, how you do play the game, situated one metre above the ground of a checked island of Archipelago, looking like a refugee from a Sculpt 3D demo. Created by the powerful minds of the Ancients, there are a grand total of 10,000 Archipelagos dotting the area.

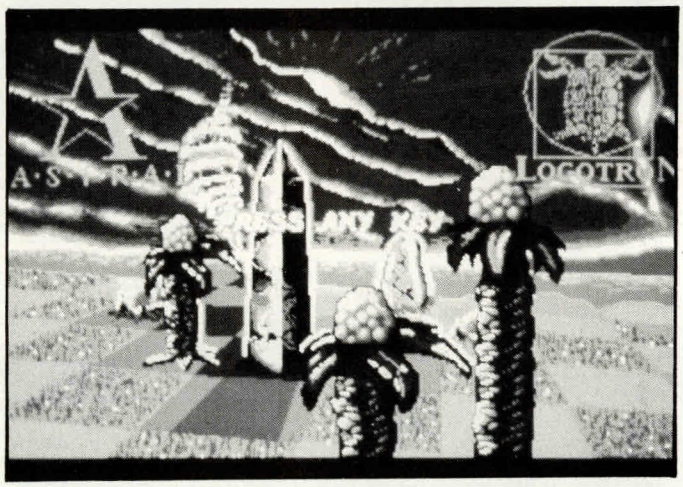
Places of paradise are always ruined by tourism and this particular beauty was, unfortunately, no exception. Visitors became attached to the place. They were so attracted, indeed, that they planted an obelisk on each Archipelago as a sort of "claim". Interestingly enough, this had a dramatic effect upon the Ancients who, apart from being allergic to obelisks, are not too keen on tourists. In fact, they were promptly drained of all their blood and turned to stone - which just about explains why. "The grass is always greener...", so the old saying goes. After

"Your job is to clean up the area, destroying the obelisks in the process."

the departure of the visitors, the land became poisoned. The obelisks embody the destruction of the Ancients. Your job is to clean up the area, destroying the obelisks in the process. However, your task is complicated by a set of nasty lifeforms which have appeared to make your quest all the more difficult.



When you load the game you will be treated to some wonderful eerie and atmospheric music. Snatches of it plus a variety of effects are scattered throughout the game. In fact much of the game's atmosphere comes from this area and it shows how much sound integration can add to the playing experience. (as marketing people call it). Floating, as you are, just above the land you must destroy, or absorb (as in The Sentinel) the stones which lie scattered around each island. Doing this weakens



the obelisk and also increases your energy level. After you have destroyed all of the stones on an island a timer begins to count down. At this point you must rush to the Obelisk, which is now at its most vulnerable, and destroy it. This is done by moving the mouse controlled cross-hair over the obelisk and pressing the fire button. Howvere, if you do not reach the dreaded obelisk in time you will be the one to perish. If it were only so easy.

Rising and falling, like a herbaceous yo-yo, are a number of arboreal trees. They slowly make their own, sweet way across the landscape. While, at the same time, spreading a lethal (to you at any rate) virus "Blood of the Ancients" over which you cannot walk. Their effects are shown by each affected square, upon the checkered surface, turning red in colour. As they wander over the surface, the infected areas cut off your pathways thus preventing you from reaching part of the island. You can turn a red square back into green though, by firing a burst of energy at it. Thus allowing you to cross. However, your precious energy level decreases too. In addition to the trees are blood eggs, which appear from level 20 onwards. They are particularly nasty as they spew forth, when hit by lightning, the red virus which infests the land at an incredible rate. So when you see storm brewing - be prepared. Whirlwinds drift by, destroying you when they pass close to you. Also, lost souls, of past explorers, wander aimlessly and, are no good for your health.

Fine, you say, I can cope with that. But what happens when you find a stone in the middle of a

ELAGOS

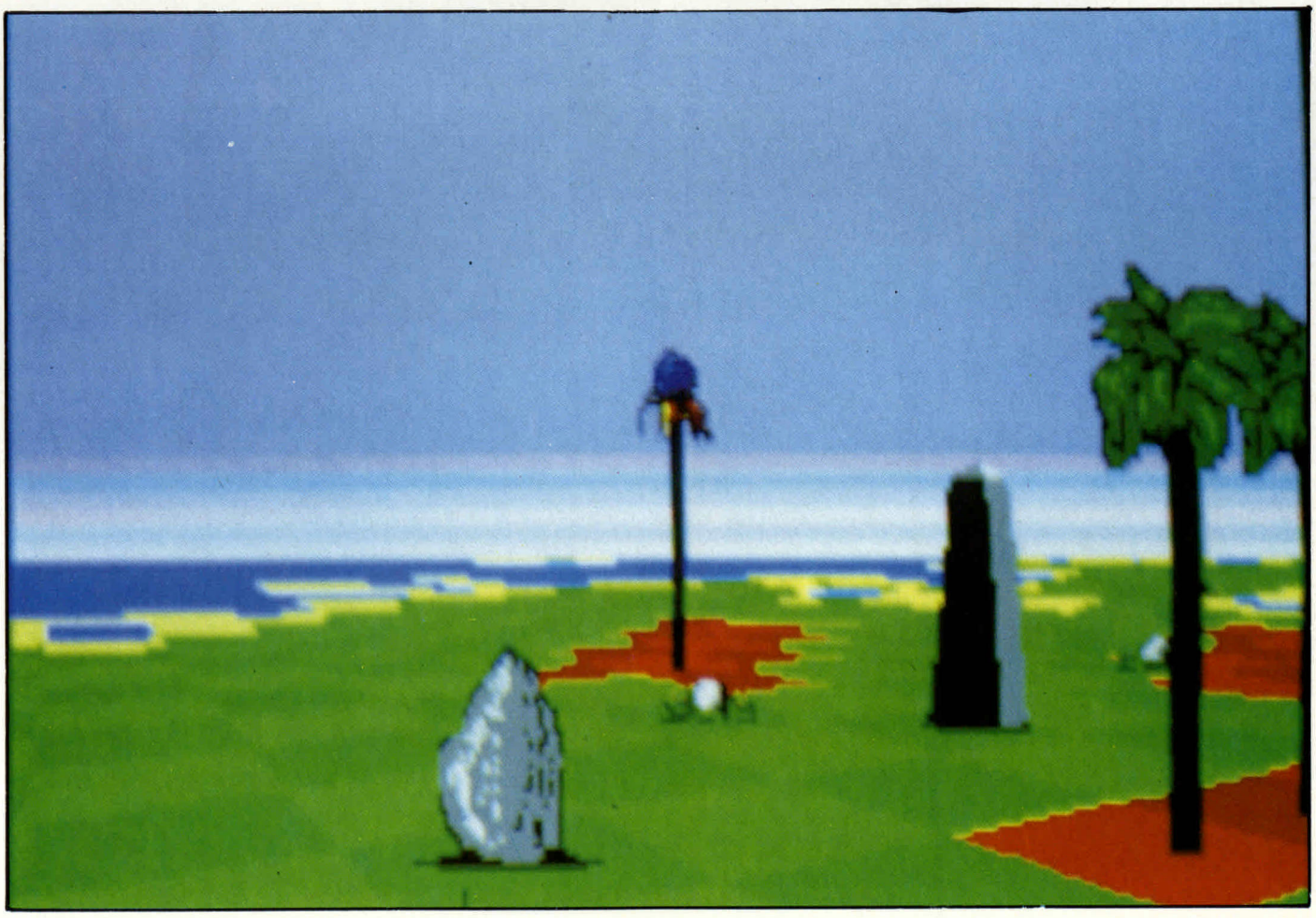
stretch of water? Well, now you must build your own land which is done by firing energy into the water You can then reach the stone. This method can also be used to build bridges to reach others areas of the land. However, watch out for the Necromancer. This chap wanders about eating land and ruining all your efforts (and, therefore, your energy).

To aid you in your navigation is an overhead map of the area. This is very handy in finding pathways through virus filled areas. I would certainly recommend that you take a quick look at the map before you start your quest in earnest. Because, as you become engrossed, you will probably forget where the obelisk actually is. So when the time comes to make that mad rush back to the obelisk, when the timer appears, you may lose your bearings. Note its position at the beginning, therefore. In addition, you will see a planet in the sky which is always orientated to the north.

Overall, Archipelagos will keep you amused for ages. The large amount of levels available means that you will get value for money. However, even though, as an independent observer, I have to say that there is nothing intrinsically wrong with it, I cannot say that I liked it too much. Which is not to say that I dislike the genre because I did like The Sentinel (maybe because it was a battle of wits between me and The Sentinel on each level, that made the challenge more tangible). My final advice is to try before you buy. As taste will play a big part as to whether you buy it or not. I found it fairly boring, over the long term - and yet I know others who loved it.

P.R.

Graphics: 8
Sound: 8
Playability: 7
Value: 8
Price: £24.99



Grand Pr
Circuit

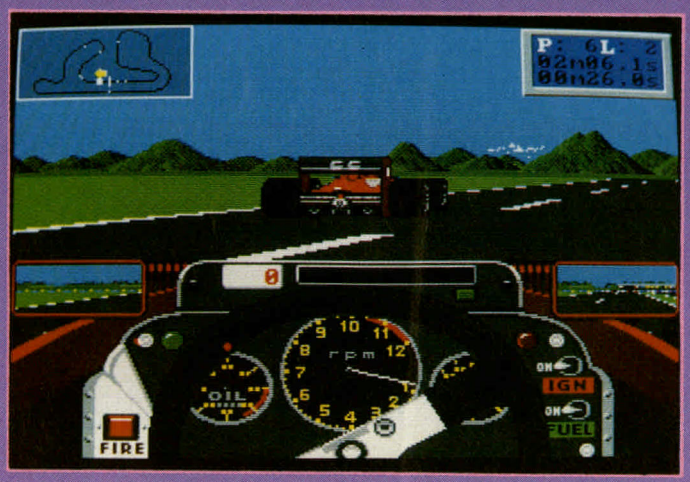
Accolade

It seems the formula one simulator is one game that will never die. The current state of the art, Namco's Winning Run, comes the closest yet to the real thing, mainly due to its perfectly smooth solid vector graphics. Electronic Arts' Ferrari Formula One was previously the only choice for Amiga users, combining detailed control of both the pit crew and driver. GPC takes a similar angle but emphasises the driving aspects of the sport.

Before you begin you can choose to practice, compete in a single race, or go for the Championship Circuit. You can rate yourself at one of five skill levels, from rookie to pro. Selecting rookie will provide you with an almost indestructible car with an automatic gearbox. Driving cross-country will do you no harm, and the opposing cars will usually steer clear. As you move up the rankings, the gears change to manual, the car gets more fragile, and over-steering begins to cause spin-outs. Once you get to pro, the engine is very likely to blow up if you take the revs too high, and veering off the track can damage the car badly.

Obviously you are a bit of a hot property, as McLaren, Ferrari and Williams are all offering you a place in the team. The McLaren is the fastest of the three, but handling such a powerful car can be a handful for the novice. The Ferrari on the other hand corners better, but at the price of a slightly slower speed. Middle of the road drivers may fancy the Williams which is a good all-rounder.





"First you need to drive a qualification lap to sort out your grid position."

Assuming you went for the Championship Circuit option, the game continues on the grid at Brazil. First you need to drive a qualification lap to sort out your grid position. The empty circuit gives you a chance to clock a half-decent time, whilst introducing you to its layout. With your lap over, the computer generates the times of the rest of the field. Each driver has an approximate skill level, but a random factor gets around the problem of the same drivers constantly chalking up the same times.

The first time you play, you will probably find yourself way down the field as you sit on the grid. Get the revs good and high in anticipation of the green lights. If you went for one of the harder skill levels, be careful not to over-do it; blowing up the engine on the grid can be very embarrassing. As the





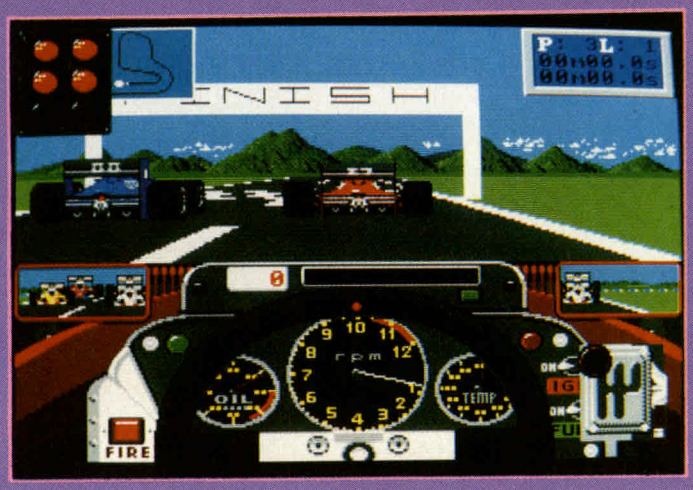
slicks get some traction, you'll notice the superior acceleration of your car. Ramming the leading cars is the mistake made by most begginers. The trick is to wait close behind until the leaders begin the rounding of a bend, usually leaving enough room on one side for you to sneak through.

If you do put your foot down a bit hard and find yourself staring up an opponent's exhaust, it's worth taking to the trackside turf, as a collision is almost always terminal.

No mouse control has been included, which means the joystick is the only option. The constant

"The wing mirrors are clever, warning of any challenges from behind."

steering rate dictated by the joystick can at first be frustrating, feeling sluggish in tight spots. However, once you get used to it, compensating and counter-steering is no real problem.



Most of the usual compensations have been made with the graphics, and Monaco has been replaced by a grassy plain, but there are a few graphical niceties to be seen. The tracks and tunnels are drawn in solid vectors moving at a reasonable speed, and the opposing cars are displayed with perspective, not just flat sprites. The wing mirrors are clever, warning of any challenges from behind. An authentic sampled engine roar was evidently too much to ask, but the drone at least provides some back-up for the rev counter.

One of GPC's best aspects is the feature which saves all your records to disk; so in theory you could go on improving your times indefinitely. The skill levels are another valuable addition to the game. The best idea is to start at rookie, play the championship circuit until you win a season, then move up a class. Those two features do a lot for the game, giving real incentives beyond winning single races. The implied realism of being able to drive one of three cars, the well-constructed championship system, simple pitstop feature and the ten circuits should satisfy the serious simulation buffs, while the gameplay comes up to the high standards demanded by the adrenaline-addicts. It's got me hooked on both counts!

T.H.

Graphics: 7
Sound: 6
Playability: 8
Value: 7
Price: £24.95

XYBOTS

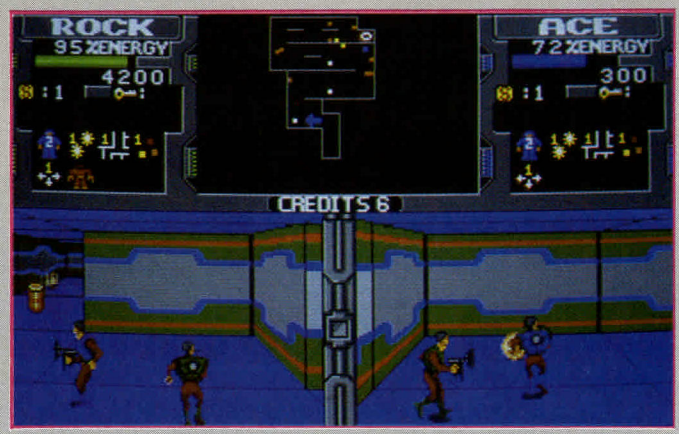
Tengen

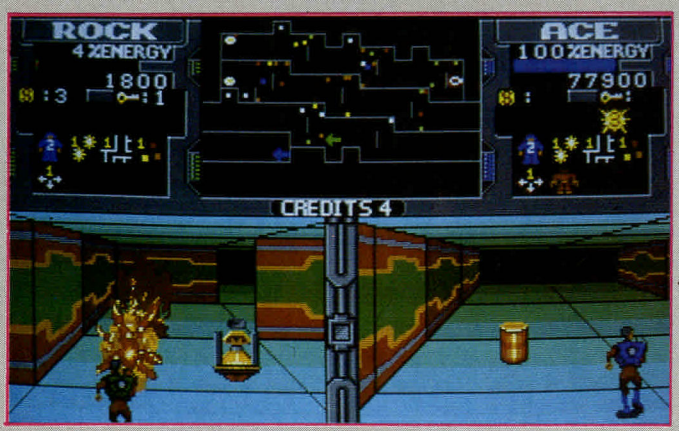
Major Rock Hardy and Captain Ace Gunn are two budding intergalactic heros. The Xybots have taken over a sprawling underground complex, claiming it as their own. For Rock and Ace, this could be a handy springboard to promotion, so when offered the mission, they accepted without a thought of the dangers which lay ahead...

Both Gunn and Ace are viewed from behind, each with his own independantly animated quarter of the screen. If no companion is available, you are forced to tackle the mission alone, but a second player can join the action at any stage in the game (credits permitting). The central top section of the screen displays a plan of the current level, while the players' status and inventory can be found on either side. Your ultimate objective is to defeat the Master Xybot, but to reach him you need to make your way through the outer levels to the inner sanctum.

"Your presence is detected immediately by the security computer, announcing "Intruder alert" in its best Robocop voice."

Your presence is detected immediately by the security computer, announcing "Intruder alert" in its best Robocop voice. From now on the Xybots have orders to destroy all intruders on sight, not forgetting to defend themselves in the meantime. You have a couple of weapons: a laser gun and a zapper. The laser is of the weak single shot variety to begin with, but can be upgraded in power and number of shots later in the game. The zapper is mainly used for freezing all the enemies in the immediate area, but it can also be used to reveal extra shot cannisters from barrels. Each level is a maze of corridors and alcoves, with deadly open spaces becoming more frequent as the game goes on. Without a guard mapper installed, the vicious red Xybots can charge you full of zap before you know what hit you. Maps, guard mappers and enemy mappers are free in the opening stages, but later you have to pay for advance warnings. These, along with power-ups, speed-ups, keys and energy restoration can be bought between levels with coins collected before hand.





Xybots works best with two players, calling for similar tactics to Gauntlet. Co-operation is essential at times, as the supply of credits is communal, so a credit used by one is a loss to both. Then again, there are times when "Every man for himself" is the motto; the occasional lure of 25 cash units for the first man through the exit sees to that.

The Xybots themselves are the usual variety of wheeling, hovering droids and are by no means spectacular. On the other hand, the 3D graphics are realistic, giving a feeling of being there. Apart from the absence of any music, the sound is pleasing. Xybots is a great bit of alien blasting, but it could just do with a bit more variety in the levels. The two-player mode should ease that, and any fan of the coin-op will be more than satisfied with this extremely accurate conversion.

T.H.

Graphics: 7
Sound: 8
Playability: 8
Value: 8
Price: £19.95

Due to an unfortunate mix-up, Savage was published instead of Xybots last month. We would like to apologise for any inconvenience caused.

Dominator

System 3

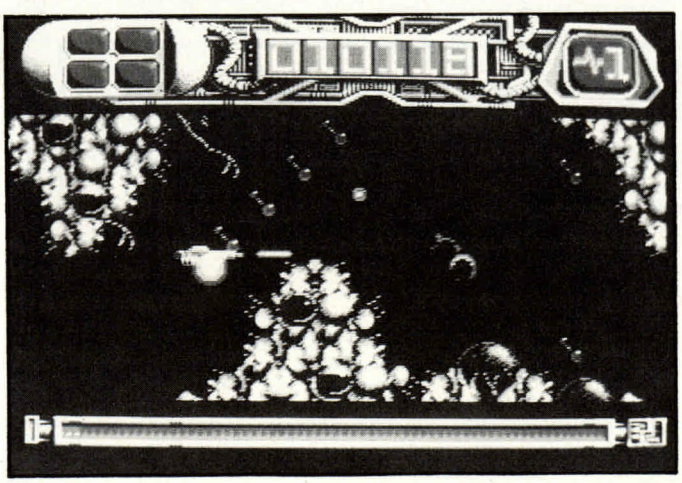
System 3 boss Mark Cale is not shy of letting the world know just how successful his venture into the software business has been, symbolised by his two Ferraris. That success has not come from releasing any old game that comes along. Right from the start, his games have been eargerly awaited, and have never disappointed. Dominator then, seems the black sheep of the fold, as it has had neither the intense hype, nor an original "concept" to back it.

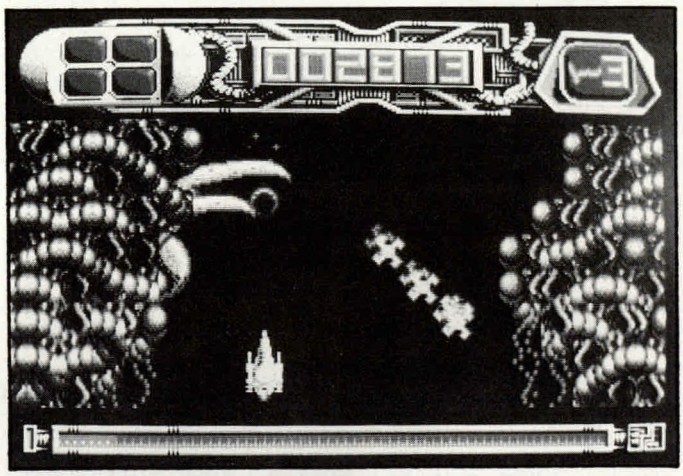
The universe is slowly being devoured by a massive monster, so emmense that he swallows whole planets for breakfast. Earth was once protected by an elite band of fighter pilots, but all these have since kicked the bucket. That is, all except you:

"The populace are crying out for a savior."

The Dominator. The toxic burps from this monster are beginning to penetrate the Earth's atmosphere; he must be closing in. The populace are crying out for a saviour. So, tossing your walking-frame aside, you kiss goodbye to your sheltered housing and slip into the bucket seat of your old starfighter. A tough, asteroid-resistant hide rules out an external assualt on the monster. The only way to stop him is to locate an orifice and frazzle his internal organs.

Just which orifice you choose to enter is unclear, but I'd rather not hazard a guess all the same. The beast must have some kind of electrical charge running through it, as contact with its flesh blows you to pieces. Defences are alerted as you infiltrate the body, and groping hands reach out from the clawed, bloody globules on either side. Little aliens (antibodies?) arrive on the scene, some taking the form of bubbles, others looking more like olives. At the top of this vertically scrolling section, a pulsating growth must be destroyed to take you to level two.





That marks the end of the vertical scrolling. From here on, everything moves from right to left. The animated backgrounds continue in a similar vein, with jaws chomping and appendages quivering (and glitching). More aliens move in for the kill, some budding motherships temporarily halting the scrolling. The game improves in graphics and gameplay once the first level is out of the way, but is still just a yawn-worthy R-Type clone.

"Scrolling is smooth, but very slow, and the sprites are jerky."

I would guess Dominator is an ST-port, as the sprite and scrolling routines could have been a lot faster. Scrolling is smooth, but very slow, and the sprites are jerky. The sound effects seem to have been added as an after thought, most of which are inappropriate anyway. As for the game design, it shows absolutely no originality. The vertically scrolling level is misplaced, and the rest is just like a slow R-Type without the good bits. Overall, the game is not up to System 3's usual high standard by a long shot.

T.H.

Graphics: 6
Sound: 5
Playability: 5
Value: 5
Price: £19.95

Competition

Design the AUI Directory Banner on Compunet!!!

Attention all Amiga artists/fans and/or comms enthusiasts. As you may know, *AUI* now has its own area on Compunet. Although we have only been on line for two months, already we've received an amazing response. And whilst we're quite proud to meet your aquaintance(s)... our area needs a bit of sprucing up – and this is where YOU come in!

AUI needs a stylish Directory banner to grace its area, and we would like to have a reader lend his or her artistic talents to the task. All you have to do is to submit an original, never-before used banner design that has been created following the specifications listed below. You can submit as many as you like, but they must reach us by *October 15.*

We will publish the winning design, and in addition to the fame and glory that the artist receives, he or she will also receive:

A COPY OF DIGI PAINT VERSION 3.0 !!!!

There will be a second and third prize winners as well. Second prize will receive a quarter's Compunet Gold Subscription plus a quarter's off-peak contact time and the Compunet terminal software. Three third prize winners will each receive 3 disks jam packed with the best of the PD software world, compiled by our on line expert himself – Stuart 'the Comms kid' Williams.

And for those of you new to the comms world, we have yet another competition. Simply answer the five questions below correctly, and you have a chance to win one of FRONTIER'S internal modems from their new 2000 range or an external modem, for use with the Amiga 500!!! Second place will receive DIGITAL MATRIX'S excellent 12000P Pocket Modem which retails for £85.

Questions:

1. *What name is given to pin number 22 of the RS232C serial interface ?*
2. *For what purpose is Y2'S Ruby View used ?*
3. *What do the initials C.I.X. stand for ?*
4. *Who created Amiga Fax ?*
5. *For which system was Compunet originally intended ?*

Directory Banner entrants must submit all artwork to us by October 3, 1989, in one of three ways: on disk; as a photograph (transparencies preferred); or, via the ***AUI*** area by. All winners will be drawn from the correct entries received by November 15. Send your entries for both the competitions by November 15 to: Compunet/***AUI*** Competitions, 40 Bowling Green Lane, London EC1R ONE.

Technical Specifications:

★ The Banner must be designed in Upper Case and Graphics Mode (in the Compunet Editor) using the graphics characters available from the Amiga keyboard in this software (see Figure 1). There is a choice of 16 screen colours in normal or reverse video (see Figure 2).

★ The banner can be created using the Compunet terminal editor or in an art package, and must be transferrable using the character shapes and colours available.

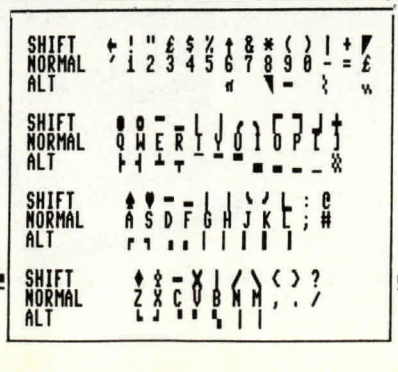


Figure 1

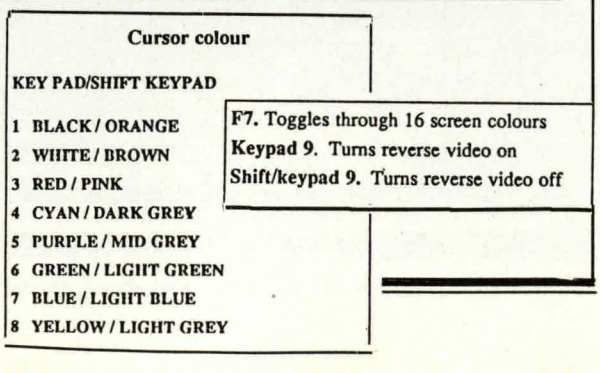


Figure 2

continued from page 22

being output. A filter is a type of formula which operates on one of more fields, for example:
Town LIKE "Paris" OR Town LIKE "London"

This filter applied to a list of clients will select only those clients who live in London or Paris. The "Like" operator is *non case-sensitive string match.* That is: town names like LONDON or PARis would be accepted. In fact the Like operator is much more powerful than this and a whole appendix of the manual is dedicated to explaining its usage. For instance, you could set up a filter thus:
Town LIKE "[a-n]*"

This would find all of the town names in beginning with the letters A through to N. Why? Well for instance, this could be useful for an area selective mailmerge.

Mailmerging

When it comes to mailmerging, Superbase Personal does not have an integrated text editor like its larger brothers - so what can you do? Simple, you just use the *Process Export* feature to send output to a file in a suitable format for your word processor's mailmerge facility. Superbase allows you to define the characters used for End Of Field and End Of Record markers, so this should cause very little difficulty with better WPs, such as Arnor's Protext.

As far as printing the labels goes, Superbase handles this task with style. Laying out each label is as easy as defining which fields to put where, and how many labels fit across the page. This is all completed by a simple mouse driven requester. As with most Superbase operations, your hands need never touch the keyboard.

The Best?

Until this point you may well be wondering what all the fuss is about; most Amiga databases can do all of this. What makes Superbase so different and so much better? One feature is *Process Query.* This is something I doubt most average users will ever need to bother with, but it is the single most powerful part of the Superbase system. With Process Query it is possible to produce reports which include data from several different files; any field can be averaged, counted, subtotalled or totalled; field groups can be repeated and it is possible to define which fields appear on each line.

I have derived this definition partly from Superbase's documentation because I do not have room to explain the Query options in detail here - the manual spends no less than 22 pages explaining all the options. Suffice to say: Process Query is a way of easily preparing almost any report imaginable, and because everything is done through a series of gadgets and requesters you hardly ever have to touch the keyboard.

Lastly, a word about the manual. It is fully indexed, well written with plenty of information and a liberal smattering of screen shots and even has some excellent tutorials... That is the good news. The bad news is it is perfect bound, which means you cannot open it on your desk to refer to without breaking the spine. Please, can I have a ring bound one next time?

Conclusion

At the end of the day there is little I can say about Superbase Personal that has not already been said - except perhaps to reiterate or paraphrase the words of my colleagues. Superbase Personal packs a lot of punch, especially for a system which claims to be a personal file management system. For the beginner, it is very easy to learn. For the expert, it has enough features to fulfil most requirements with ease. While I cannot claim to know every Amiga database inside out, it is my considered opinion Superbase Personal still takes a lot of beating. Highly recommended.

M.S.

Price: £99.95. Contact: Precision Software, 6, Park Terrace, Worcester Park, Surrey, England KT4 7JZ. Tel: 01-330 7166. Review copy supplied by: CHIPS, 151-153 Linthorpe Road, Middlesbrough, Cleveland TS1 4AG. Tel: (0642) 219139.

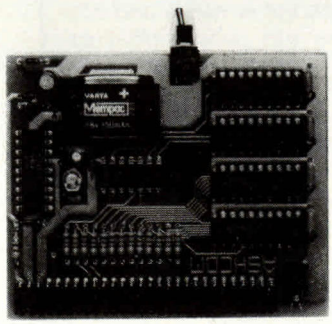
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"Did You Know...?"

More Modem facts from Mark

The computerised carrier pigeon...

As has already been mentioned the word modem is simply a contraction of the words modulator/demodulator. In electronics, these terms stem from the early days of radio where audio signals were first transposed onto a high frequency radio wave by a process know as amplitude modulation. In fact, all radio systems use some form of modulated carrier wave. Modulation is the process of adding the two signals together. Demodulation on the oher hand, is just the reverse - where the superimposed signal is removed from the carrier.

But why bother to use a carrier wave in the first place? Well the problem is this: the data which make up a serial transmission cannot be transmitted directly over any sort of telephone line. Attempting to do so would be extremely dangerous and illegal. To get around this, the whole data stream is superimposed (modulated) onto an audible carrier; that is the whistle often associated with modems.

The receiving modems, like a radio, separates (de-modulates) the auido carrier from the data, discards it, then passes the data - in the form of a serial transmission - back to the computer.

DIY Modems

Building your own modem may sound an attractive idea if you have the skills and the time. Indeed some of the larger electronics suppliers like Maplin, used to supply modems in kit form. Maplin have now discontinued theirs becuase, they tell us, it was uneconomic to build such a basic modem at home; besides, such a design could never win BT approval.

If you still insist on attempting to build one with your own fair hands, something we strongly advise against, many of the parts can be found in the current Maplin catalogue - start with the AM7910 LSI Modem chip and work from there. The chip's data sheet should give some practical applications circuits to work with.

Alternative systems - helping you save money

At present BT are upgrading the entire telephone network and converting the old mechanical exchanges to the newer digital equivalents which can connect a call just milliseconds after you hit the last digit. The other advantage of these is they tend to provide much "cleaner" lines suitable for modems. In the meantime you can apply for a dedicated line but they cost a lot of money.

On the other hand you could apply for a subscription to Mercury who only use digital exchanges throughout and BT lines for the local connection. The advantage of this is you tend to get much better connections to distant systems and the Mercury system can work out up to 25 per cent CHEAPER than BT!



Clickity-click - the problems with data transmission

The telephone system employed by British Telecom (BT) has been on the go for may years now. A long time ago, when parts were more complex thatn they are today - the humble telephone system was very simple indeed. The pickup was formed from a carbon granule (resistive) micrphone and the earpiece from a simple high impedance coil earpiece.

When a connection was made, these two were connected in a series (ring) circuit to the other receiver/earpiece combination at the other end. Between the two, a power source - say a nice large battery - completed the circuit.

The effect of all this was: speech was picked up by the carbon microphone and - by virtue of varying resistance - converted to a variable current; the current was converted back to sound by both earpieces. This is why you can always hear your own speech in the earpiece of old telephones.

Over a long distance though, the current tends to drop off due to rtesistance in the wires. In order to overcome this, repeaters are fitted at specific points in the line an amplify the current. However, to amplify the whole audio band (about 20Hz - 20,000Hz) would be expensive - and inconvenient since it would also amplify the noise generated by the crude electronics.

This problems is rectified partially by filtering just the "speech band" (about 300Hz - 3000Hz) passing only the frequencies common in human speech and amplifying those. This causes a problem where modems are concerned because the maximum carrier frequency is limited by the upper limit of the voice filter - 3000Hz. Similarly, other frequencies which do get past the filter - the clicks and pops common on many of the older exchanges - interfere with the carrier causing data errors.

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SCULPT ANIMATE 4D Junior

Mark Pickavance discovers that young Jr. is a geometric chip off the old block.



In the May issue of *AUI* Hugh Riley reviewed Sculpt 4D, the professional CAD system. At over £300 pounds it is beyond the pockets of most AMIGA users. A cutdown version is now available, with a budget price to match, In its own colonial style Byte by Byte have called it Sculpt Animate 4D Jr.

I don't know about you but I always have my reservations about a cut-down version of anything, they have a tendency to include all the features you didn't want and none of the ones you did. The ACORN Electron being a prime example. I rest my case your honour.

So having been a user of Sculpt 3D and the professional 4D, I came to Jr. more than a little sceptical, however my initial impressions were favourable.

The Sculpt Jr. package is the size of a thick hardback novel and contains a large, well written manual and a single disk. On the cover of the Manual is an attractive graphic of an advanced fight plane. I was later dismayed to discover that this was not supplied with the program. A noteinformed me that if I return my registration that a FREE data disk would be sent to me and a free newsletter. This seemed some consolidation for the limited five objects supplied on the Jr. disk. I began by running Jr. from Workbench and was soon greeted by the familiar TRI-VIEW setup: the three window system devised to enable you too view your creation from the three different planes simultaneously. After a quick tour around the various pull-down menus I concluded that very little had been removed from the professional version, in addition all the remaining features had retained their previous positions and usage. This is a major advantage for any user who decides to upgrade to the professional system. With further experimentation I confirmed that the data format is unchanged - so all objects and scenes designed on Jr. are portable to all other versions of Sculpt.

First the Bad News...

The main casualty of the Jr. version is ray tracing in HAM graphics mode (Hold And Modify), and with it the ability to plot shadows and reflections.

Their are now only three modes: wire-frame, sketch and scan-line. These are however available in low or high resolution, and with interlace or not. In addition the ability to plot overscan, 'Jumbo' or 'Video' images has also been removed. The logic of this omission evades me. Because you can't have HAM images you have no use for anti-alias, facet texture or patterned floors - so you don't get them either. To demonstrate the difference between HAM and a scan-line image I included a nice HAM image called 'Dream House'. Compare this with all the other images which are scan-line. This HAM image was produced with the full Sculpt Animate 4D not the Junior version reviewed here.

For What Purpose?

The typical user at whom this software is targeted is difficult to pinpoint, the potential uses are so wide ranging. The thrust of Jr. seems to have been towards the first time CAD users with less dedicated hardware than the professional. These options which required the most memory have been eliminated. This gives the user maximum opportunity to create reasonably complex shapes and animate them, rather than produce attractive static images.

However this does not mean that you are flush with memory - I own an A500 with one meg of ram and I soon found that my creative zeal overtook available bytes. You can reclaim memory by running Jr. from CLI (after first setting the stack to 30000), and this helps. Sculpt Jr. is the type of software that would be 'even better' with more memory.

Then tell me what AMIGA software isn't. The possible uses for this software are varied and numerous, you could see this software being an excellent educational tool for explaining geometry and design in a very practical way.

Alternatively those people who are keen demo makers would find it invaluable for generating 3D animation.

And now the Good News

A major facility which to my delight was not removed is animation. The sophistication of these controls can not be fully explained here but basic features are these:

Key Frame animation

Betweening

Looped Sequences

Animated camera

Animated illumination

'Global' or 'Frame' related actions

Under your control each object in a scene may be moved independently or as part of a group, performing whatever motion you require. To this you can then add a moving camera and mobile lighting. The only limitations are your imagination and the ability of your machine to load and play your creations. When animations are 'rendered' or painted the images are dumped to disk after each is produced. It is quite possible to create an incredible animation which you are totally unable to view due to the size of the file you created. Understanding the limitations of your machine is the key to using Sculpt. Animation files are saved out in ANIM format, this is IFF form of animation data. The animation sequences can then be put under the control of another package which accepts ANIM files. These include Deluxe Paint III, Lights, Camerea, Action and many others. Using an additional package you can add special effects, sound and conventional animation. The supporting of Anim files is a big plus and should be commended.

The Good, the Bad and the Ugly

All the following comments can be equally directed to the professional version of Sculpt.

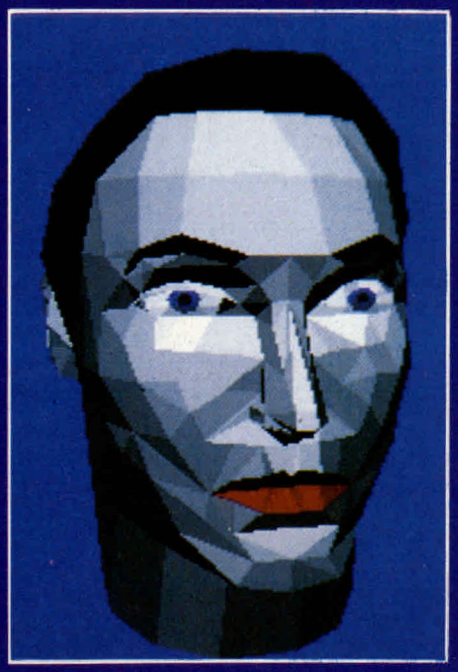
Firstly some negative ones.

In a totally subjective sense I dislike the user interface intensely, it is clumsy and slow. The TRI-VIEW window enviroment suffers from having a very slow re-draw and a inaccurate control system. I'm sure that with practice you can become adept at using it, but a great many users will have pulled their hair out before then.

I would also like this software much more if it did not use AMIGA Dos, the AMIGA has perfectly good (if not excellent) hardware, you cannot say the same of the operating system. So why do people insist on using it? Considering the amount of work that you may do to produce an interesting shape, it is almost certain that at some stage you will experience a Guru - or just a complete reset. No other computer owners would accept this, so why do AMIGA users?

In the Sculpt world everything is constructed from triangles, this means that if you have a square side to an object it is defined as two triangles(?). The logic behind this is that it simplifies the rendering code to deal with all elements as triangles. I'm sorry folks but this is puddled logic. What it actually does is to make objects look more complicated than necessary when you are drawing them, which makes them hard to construct. It also increases the size of the data in an object, which extends rendering times. Example: a cube has 8 vertices, 8 edges and 6 sides: In the Sculpt system this becomes 8 vertices, 14 edges and 12 facets.

If anyone disagrees with that opinion I suggest that they look at Caligari which does not use triangles. The construction technique is intuitive and produces quick, clean images. It will not produce a HAM ray trace though, then neither will the Jr. version of Sculpt. The main point in Sculpt's favour are that what it does it does very well. Almost every conceivable situation has been taken into account. In particular I was impressed by the code that enables objects to be pushed through each other to create combined shapes.



The next step would be to enable one shape to subtract its volume from another - this feature is available on an ST product costing much less than Sculpt.

Conclusion

Considering that this is a Jr. version not too much has been removed. Those who liked Sculpt 3D for its flash HAM images are going to be disappointed. If on the other hand you want an entry level system to experiment with solid 3D graphics and animation then you will not be. The manual is comprehensive, and has tutorial sections to introduce you to all of its software features. It compares well with its big brother, but less well with other packages. The majority of which are below £100.

Before you decide to buy I do suggest that you seek a demonstration of both Caligari and Design 3D (to name just two), and compare the user interface and options. You may also consider the Original Sculpt 3D which is still available for around £60 from many vendors.

Given that you are willing to grapple - Dos vs patience - with this package you can produce some quite stunning graphics and animation. It's for you to decide if you want to make the effort.

M.L.P.

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The Champ

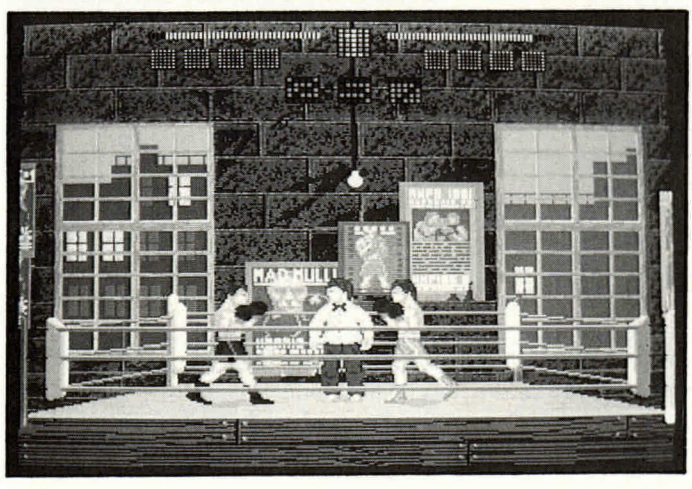
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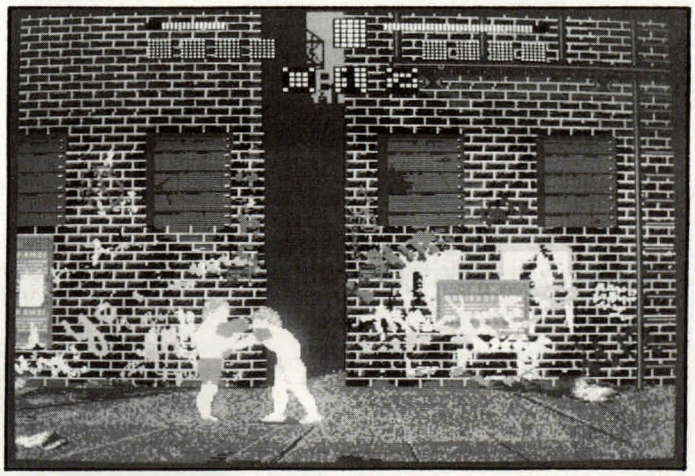
To some, it's a barbaric sport that deserves no place in the Olympics, to others it's a fine art. Which ever view you take, there is no debate: boxing at the highest level is big business. The lovable Frank Bruno and the unbelievable Mike Tyson have done a lot to bring the sport back into the public eye of late, with exclusive screening rights becoming red hot properties among national TV networks. The capturing of that excitement in a computer game is a feat rarely achieved. The Champ, from Linel, is the latest challenger for the title.

Everyone has to start somewhere. Your road to the top begins in your teenage years, when as a cocky kid in a rough neighbourhood, you learn the ropes of fisticuffs for your own survival. As a renowned hardnut among the backstreet brawlers, your early days are spent in illegal punch-ups downtown, until a sharp-eyed manager signs you up. This is where your career starts.

"Before you get to fight, there's a lot of work to be done in the gym."

Before you get to fight, there's a lot of work to be done in the gym. Through excercise and sparring, a variety of stick waggling techniques build up your strength and skills. Your first fight under the new management is hardly the glitzy, multi-million dollar affair you have set your sights on. However, the class of your opponents take a sudden step up. Whereas before, you could beat any challengers with one hand behind your back, these boys are no push over. The fight logic takes a strange turn here. Using the "killer punch" (a powerful hook), you can





still deck your opponent countless times in each round, but their strength bearly suffers, and the ref refuses to stop the fight even though your opponent can go down with almost every punch.

"Each win takes you closer to the big title fight."

Each win takes you closer to the big title fight. Competition stiffens and the venues rise above gutter level, climaxing in a massive arena, filled to capacity with an ecstatic crowd. The progressive difficulty and lure of the title gives you a definite goal, but getting there is not as much fun as it sounds. The Champ follows the fate of just about every other boxing simulation. Every fight is just a slow exchange of blows, which gradually depleat the players' energy levels until one collapses or the time runs out. The instant reactions and forethought demanded by the likes of IK+ play no part in The Champ. Rather than skill, winning a fight depends more on finding out the most effective techniques.

Sampled background noises have been added to enhance the scene settings. The rest of the in-game effects are not up to much, although the talking ref is a nice addition. Despite the PAL graphics, the boxers themselves are not that big. Some giant sprites, along with improved gameplay, could have raised The Champ above the competition. As it stands, it's just another in a long line of unexciting boxing sims.

T.H.

Graphics: 5
Sound: 6
Playability: 7
Value: 6
Price: £19.95



continued from page 38

external device, it is worth considering. It connects to the corresponding pin on the modem or other piece of equipment.

Pin 7, Signal Ground, often shown as GND or 0v (zero volts) is the electrical reference line for all the other connections, and is essential (except in the case of those rare modems and other peripherals which use Pin 1 instead). Without a GND connection, the interface will not work. It connects to the Signal Ground pin on the external device.

Pin 8, Data Carrier Detect, alias DCD in, allows the input of the Data Carrier Detect signal from a modem; this allows the modem to inform the computer when it is receving a valid carrier tone from another modem attached to a computer at the other end of your phone line.

"Some modems keep DCD activated all the time, though this is uncommon."

Modems

Some modems keep DCD activated all the time, though this is uncommon. In principle, simpler devices can also use this signal as the equivalent of CTS, as the Amiga knows that it can begin transmission and reception of data when this pin is activated from the modem. What will normally happen is that when the modem receives the carrier, it will activate DCD, and then if it is an autodial modem, it will hold the line, output its own carrier tone, and permit data transfer, usually shutting off its internal speaker at the same time. With a manual modem, it is up to you to detect the carrier (with your ears!), and switch the modem online manually; it will then grab the line and output its own carrier, indicating to the modem at the other end that all systems are go! With an autodial (usually Hayes compatible) modem, the line will be dropped automatically if the carrier disappears at the other end of the line; with a manual modem, you will generally have to watch out and do this yourself, though some more advanced manual modems are able to do this either on their own or through software detection of the deactivation of the Data Carrier Detect line, which then requires the software to deliberately signal the modem to drop the line, usually via Pin 20. Data Carrier Detect is not normally used in direct computer connections, and in these cases can be ignored, but if it is provided on a modem (and it usually is), then it should be used. It connects to the DCD out pin on the modem.

Pin 20, Data Terminal Ready, or DTR out, is normally intended to inform the external device that the computer is activated and ready to co-operate. In the case of a modem, it is common on more sophisticated manual dial devices for the deactivation of the DTR pin to be used as a signal to 'hang up' the 'phone line. Data Terminal Ready is not always used, but if the connection is available it may prove useful, and in the case of some modems, may indeed be essential; it has even been known to be used

"RI connects to the matching Ring Indicator output on the modem."

for on-off toggling of DTR to produce a pulse dial effect, thus allowing manual modems with this pin to autodial without autodial hardware! This has to be done in software, but may be frowned upon by British Telecom, as it may negate the BABT approval of a manual modem. DTR connects to the matching DTR in pin on the modem or other device.

Pin 22, Ring Indicator, or RI in, allows a modem to inform the Amiga that the 'telephone' is ringing, and is sometimes used by bulletin board or similar host software to detect an incoming call, and then order the modem to 'answer the 'phone' by grabbing the line and outputting an answer carrier tone for the incoming caller. RI connects to the matching Ring Indicator output on the modem.

These, then, are the basic connections which are most often used in serial communications with the RS232C; as I have said, it is not always necessary to use even these few pins, and you can sometimes get away with just Signal Ground (pin 7), Transmitted Data (pin 2) and Received Data (pin 3) if you have a simple job to do, and if all your data flow control is done in software, perhaps

"This system is something of a hangover from the days of using mechanical Teleprinters with telegraph and telex systems via the phone lines."

with the Xon/Xoff protocol. More often, especially if you want to connect a serial printer, you will need to use these three connections plus pins 4 and 5 (Request To Send and Clear To Send), and possibly pin 8 (Data Carrier Detect).

Control Software

Once you have the connections themselves made, you will find that it is necessary to use your control software, either through Preferences or via a Terminal program such as Comm, Access or A-Talk III, to set up the port to match the system to which you are connecting at the other end of the cable, or if you are using a modem, at the other end of the telephone line! I've already gone into the needs of various online services, and the different types of terminal software available to meet those needs, in previous articles, so perhaps a few words on data format would be useful.

Data Format

I said earlier that data is transmitted and received serially, one BIT after the other, through the TX and RX pins. Each BIT eventually makes up a BYTE, which will consist of seven or (more commonly) eight data BITS plus control bits. This system is something of a hangover from the days of using mechanical Teleprinters with telegraph and telex systems via the 'phone lines. The first BIT is preceded by a START BIT, to signal to the other end that the BYTE has begun. It is followed by seven or eight DATA BITS, which comprise the actual information sent, then a PARITY BIT, which is used to check all the BITs received by adding them up and then, depending on whether the result is odd or even, adding a binary 0 or 1. Finally, a STOP BIT is added to signal the end of the BYTE or character. This is the basis for most ASCII transmission systems using micros; however, there are minor variations. Most Electronic mail services (such as Microlink and Telecom Gold) and Viewdata services (Prestel, Micronet and Viewdata Bulletin Boards) use seven data BITs, even parity, and one STOP BIT. Most of the hobbyist scrolling text bulletin boards will use eight data BITs, no parity BIT (sometimes, but very rarely, odd parity), and 1 stop BIT.

There's no obvious advantage to either system for text transmission, and certainly your data is just as likely to be corrupted by a bad line, whichever setup is used! Your software manual will commonly refer to these two data formats as 7E1 and 8N1 or 8O1. You should normally ensure that the port or software is set up to 8N1 if you are transferring files, either to or from a bulletin board, or to or from another computer, as the most common error checked transfer protocol, Xmodem, works with this format, and the Amiga's serial protocol must exactly match that of the device to which it is connected to be able to transfer correctly. In addition, you will need to match the BAUD RATE (the transmission and reception speed, in BITS per second) of the port to the external device, to enable communication.

You should now have the knowledge (in conjunction with the port pinouts in the instruction manual of your modem, printer, or other peripheral device!) to hot up your soldering iron, put together your own cable, and make the RS232C connection!

S.W.

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A.M.A.S.

Paul Andreas Overaa samples a MIDI Sampler

A.M.A.S., which stands for 'Advanced MIDI Amiga Sampler', is a budget priced hardware/software sound sampling package available from Microdeal. You get a unit about 4" by 5" which plugs into both serial and parallel ports), a disk with the necessary software, and a rather small manual.

Getting down to Business

Right from the start there is an added bonus with the A.M.A.S. package because the hardware includes a MIDI interface thrown in. Since you can pay £30-£100 just for a MIDI interface, this might be a point worth bearing in mind if you are contemplating moving into the world of MIDI in the near future ! Sound input for sampling purposes is via two line level phono sockets (left and right stereo) or a 3.5mm microphone input. Sensitivity on the line inputs is 0.8 volts, and on the microphone input 25 millivolts.

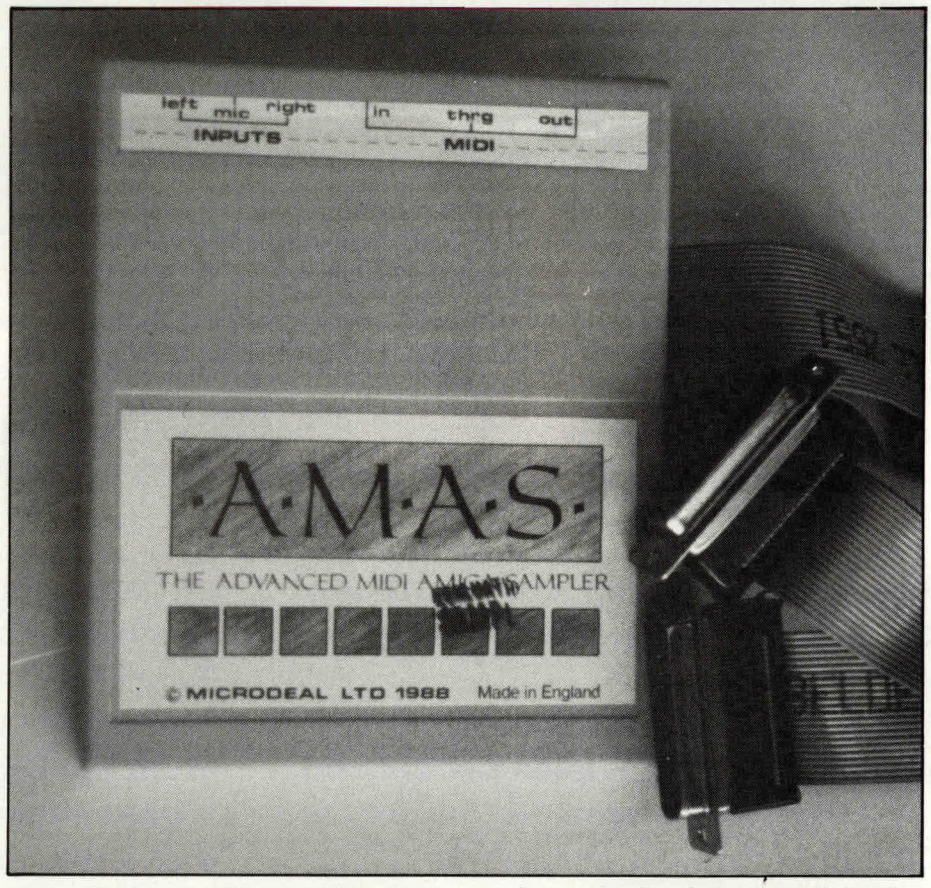
The A.M.A.S. spec looks quite good with sampling frequencies of 40kHz stereo and 90kHz mono, approximately, and stereo playback at up to 28kHz. Up to eight banks of 200K RAM each containing ten stereo samples per bank can be used (if you have got sufficient memory available) although on an unexpanded A500 you will have to make do with one bank (still quite enough with which to do useful work).

The A.M.A.S. hardware handles the A/D conversion stuff but the 'guts' of the product, at least as far as the user is concerned, is essentially software based. How did it fare ? To be honest, my first results were a bit disappointing. There are two reasons. Firstly I have been spoilt with some of the sampling keyboards I have used. Secondly I did tend to rush the initial experiments a bit. It took a bit of time experimenting, but within a couple of days I started to get some quite reasonable results.

The Software

One 'plus' as far as the A.M.A.S. sampler goes is that data can be saved or loaded not only in raw form, but in IFF form as well. This means that you'll be able to use samples prepared with the A.M.A.S device with all Amiga music packages which support the IFF sampling format - and this means almost every Amiga music package on the market today !

The A.M.A.S. software is easy to use (and there are some nice touches on the gadget designs). It is essentially a single page display - although the MIDI gadgets are toggled - brought in to overlay other control gadgets. At the top of the display, together with the cursor position counters, are the bank selector gadgets. Below this comes the stereo sample editing display and the left and right channel oscilloscopes. Moving around the sample is achieved using straightforward 'tape recorder' style gadgets, but most of the editing and general housekeeping operations (e.g. loading and saving samples) are performed using a collection of gadgets grouped near the bottom of the display. It's a nice display and is convenient to use.



The editing facilities are very good and portions of samples may be swapped, mixed, reversed etc. There are cut and paste operations available and memory saving 'shrink' operations let you compress large samples. You can cross fade and pan across the stereo field and when editing difficult areas of the sample there is a 'magnify' option for detailed examination of the waveform.

The MIDI facilities include channel assignment and keyboard splitting, so you could even use the A.M.A.S. package as a cheap MIDI expander. It would certainly be adequate for home use although to be honest it's unlikely to appeal for more serious applications.

Conclusion

Did I like it ? Yes, the A.M.A.S. package, especially with it's built in MIDI interface, is good value for money. It is obviously not going to appeal to the Roland/Yamaha/Akai users of this world, but considering the price you would not expect it to target that market.

A.M.A.S. is essentialy a budget sampler; it's good fun with which to work and with care it can be used effectively. Above all it will make the world of sound sampling accessible to the many thousands of Amiga owners who may neither want nor need professional sampling facilities.

The hardware worked, the software didn't play up, the MIDI interface was as good as any others I have tried (let's face it they either work or they don't !). As far as the sampling was concerned, I managed to get some quite reasonable results and I enjoyed using it. Providing your requirements are not too demanding then this unit , which costs only £99.95 provides a ideal introduction to the fascinating world of sampled sound !

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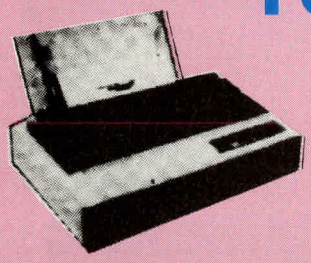
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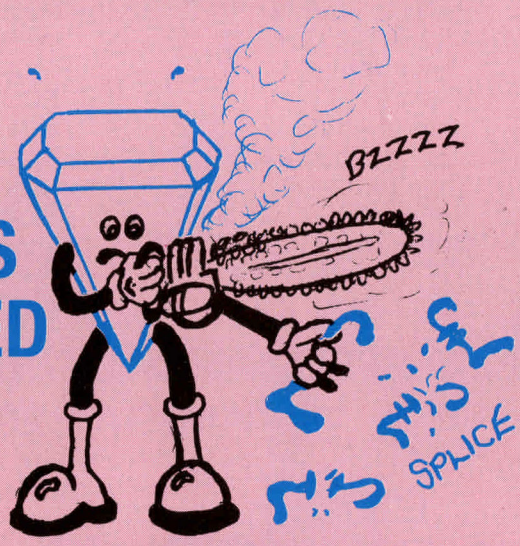
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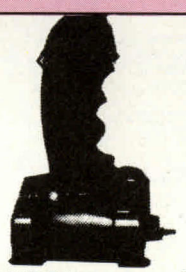
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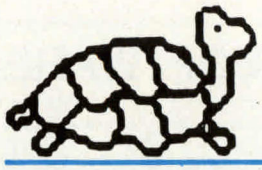
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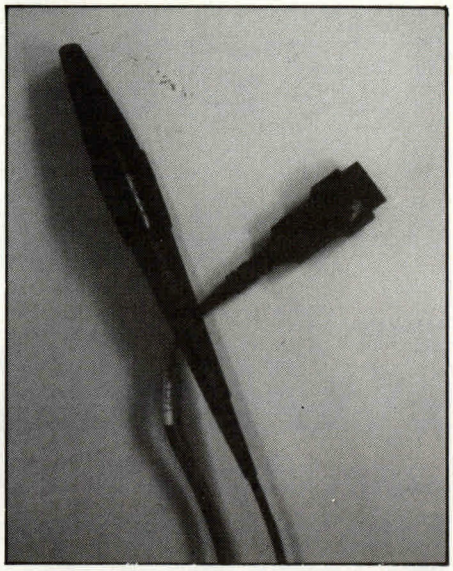
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The Amiga 184-A Light Pen



The pen may be mightier than the sword, but it doesn't cut any ice with Peter Lee, who sheds some light on a new add-on...

There are two sides to every argument, and light pens, being an acquired taste, tend to polarise opinion. Some may wonder why a computer such as the Amiga, blessed with a superb mouse, needs another device to control the pointer. But enthusiasts speak of the greater interaction they experience by using something as familiar as a pen to control on-screen movement.

Light pens, by their nature, require a degree of intimacy in controlling programs which the mouse - which is usually kept on a desktop - does not provide. The pen is held an inch or so from the surface of the monitor screen, and used to guide the pointer around whatever software application you happen to be running.

"The pen simulates the two mouse buttons by a couple of touch-sensitive sensors mounted on the barrel."

In the case of Inkwell System's sleek black pen, applications include anything from an art program to a spreadsheet, i.e. any software which utilises the Intuition pointer. But in the case of Deluxe Paint, the pen and software driver, which has to be loaded in before the pen will work, will only work on the latest version, DPaint III.

I tested the pen on a number of applications and failed to find any which were not supported; how well I performed is a different matter. The pen simulates the two mouse buttons by a couple of touch-sensitive sensors mounted on the barrel. Problems arose because these were like hair-triggers, which had to be carefully avoided to prevent inadvertent mouseclicks; as I set my mouse-click preferences to fast, this led to some unwarranted errors as a finger glanced over a sensor.

The pen is lightweight enough, but my experiences in the past with these items (I made one myself, which gave more pleasure in the construction than it ever did in use) and with this version too, was that only a few minutes' prolonged use tends to tire the arm - and I'm no 7 stone weakling.

Results

I found using the pen in DPaintIII a mixed blessing; drawing flowed along smoothly, but palette choice in 64-colour mode was imprecise, so that the mouse performed better in this use. I also had success in another art package, Spritz, which allowed the kind of smooth, free-flowing line which the mouse often cannot deliver.

The cursor alignment with the pen can be calibrated by running a small program which is on the accompanying disk containing drivers for the Amiga 500/2000 and A1000, and you can optionally run a sound effects program which will beep whenever you touch a pen button; this I learned is a real necessity.

The pen plugs into a joystick port, leaving the mouse still connected for either/or use, and is attached by a generous length of thin black wire. To give it its due, the pen offers its services in interlace, non-interlace and overscan modes, but on the other hand it will not work in Amiga Basic. Therefore if you intended writing your own little Basic games such as noughts and crosses, forget it; the manual also warns that the pen can experience a 'dead zone' when only the mouse can be used, and has difficulty moving the pointer with dark screen colours, which makes working with the initial black DPaint screen impossible; you have to select a lighter background colour to get any worthwhile response.

Conclusion

A light pen is one of those add-ons which have instant attraction, but which may get put in a drawer once the novelty has worn off. By all means give this pen a test run if you like the idea; it is light, which will cut down on the aching arm syndrome, beautifully designed and engineered, compasses a vast range of pointer-driven software. Some artists who shy away from the mouse may well find a more psychologically acceptable alternative in the pen. The manual, however, looks like a dot-matrixed home-made job, augmented by some vital information is a read-me file on disk. Finally a minor grouse - there is not one demonstration program in the package at all, which is something of a let-down.

"Some artists who shy away from the mouse may well find a more psycholgically acceptable alternative in the pen."

P.L.

Price: $129.95 (U.S.) Contact: Inkwell Systems, 1050-R Pioneer Way, El Cajor, CA 92020. Tel:(619) 440-7666.

PD - Free, Gratis and Practically For Nothing

Stuart Williams continues to paint a picture of the graphic programs available in the Amiga public domain...

In this issue, I'm going to concentrate on two powerful PD and Shareware graphics applications which, while they both share a common purpose - to draw - are actually very different, in operation, application, and in the type of graphics produced.

mCAD Version 1.2.5

mCAD is a sophisticated object-oriented drawing program, which operates in hi-res (640 x 400) interlace mode. It has a small set of graphics primitives (like "line", "box", and "text") and a small set of editing functions (like "move", "size", and "rotate"). While drawing and editing, the user can call on other functions to modify the display - to zoom in, slide around, superimpose a grid, etc.

The most powerful feature of mCAD is that primitives can be grouped and ungrouped; unlike normal bit-mapped graphics programs, which simply become part of the screen, object-oriented graphics may be moved around and re-organised at will. In the case of mCAD, the editing functions operate on groups of (one or more) primitives.

All Amiga users know how to use the mouse to draw pictures. In mCAD, the mouse does mostly what you would be accustomed to from programs like Deluxe Paint. There are, however, three important differences:

1) In mCAD, you are called on to SELECT objects for treatment with one of the editing tools. Since mCAD can't know for which of two or more overlapping objects your SELECT click was intended, it runs through a list of all the possibilities, highlighting each in turn. In this context, the MENU button means "No, not that one", the SELECT button means "Yes, the highlighted object is the one I want".

2) While drawing a primitive (exception: text) or editing a group (exception: colouring), mCAD gives you a chance to abort the whole operation. In this context, the MENU button means "Abort", the SELECT button means "The highlighted object is drawn as I want it, make it permanent."

3) Certain editing functions, "Size" for example, require additional information and indicate this by drawing a highlighted object. You are asked to click on (SELECT button) e. g., one corner of a box.

So, generally, when the mouse buttons do not have their Intuition meanings, the SELECT button means "Yes/ok/do it...", and the MENU button means "No/abort/get me out of this". This follows the accepted Amiga convention that "left" breaks new ground while "right" is conservative and safe. If you get lost in, or called away in the middle of, a sequence of mouse clicks, a couple of MENU button clicks will get you out of it.

Menus

As usual, mCAD sports a full complement of pull-down menus:

The **PROJECT** menu includes all the usual file commands we've come to expect of Intuition-based programs, New, Open, Save, SaveAs, Quit etc. One of the most significant of these options is, however, Plot, which saves the entire drawing as a plot file in the Hewlett Packard Graphics Language - since HPGL is the de facto industry standard command language for plotters, this is a very important feature. This plot file can then be sent to the plotter.

The **PART** menu includes commands to allow the loading and saving of sections of drawings or 'groups' which can then be included as part of new drawings - for example, electronic components, engineering parts, or even kitchen cabinets!

The **OPTIONS** menu lets you redraw the screen, zoom into a section of the drawing, overlay grids and axes on the screen, including a snap to grid option, show a numeric position readout and to replace the mouse cursor with crosshairs.

The **DRAW** menu includes familiar commands to draw connected lines, boxes, and circles, rubber-banded of course, plus the ability to draw arcs with three mouse clicks. This menu also allows 'cloning' or duplication of a group of objects in the drawing, as well as setting up of the location, size and aspect of text which you can type onto the screen.

The **EDIT** menu allows, after selction of a group of objects, erasing, sizing, moving, and rotation of objects, plus the option to change their colour to the current plot colour.

The **COLOURS** menu permits colouring of boxes, modification of colours, and the saving of the current colours to a disk file. In addition, the **LINETYPE** menu allows the setting of different line drawing styles.

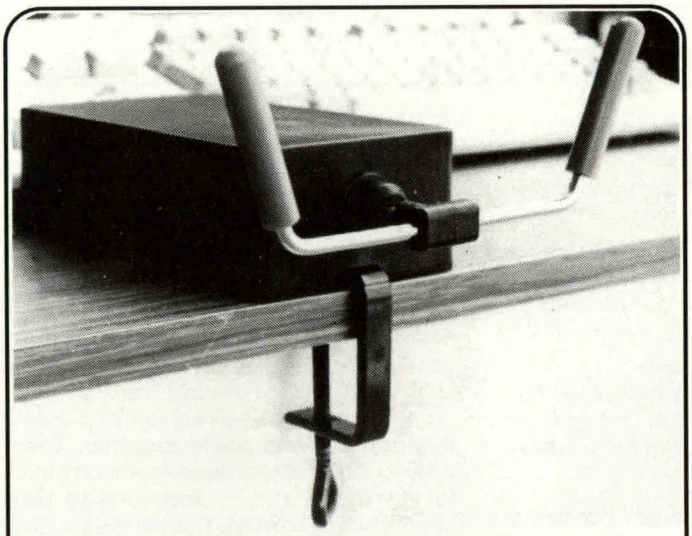
mCAD is a very powerful program which would undoubtedly be a boon to the impoverished amateur or student electronics designer. It is possible to design and save a complete set of symbols, or indeed anyone looking for a basic two-dimensional Computer Aided Design program to whet their appetite before moving onto more powerful (and expensive) heavyweights such as X-Cad Designer! mCAD was written by Tim Mooney.
Highly Recommended.

Vdraw 1.19

Vdraw is a remarkable Shareware drawing program by Stephen Vermeulen of Canada. Unlike mCAD, which is object-oriented, Vdraw is of the more familiar bit-mapped graphics type (as with Deluxe Paint etc) of art program. It stands out from the crowd by using an unusual icon-operated user interface, and is capable of multi-tasking. Users with only 512k of RAM may have to close all windows before running vDraw. The screen size is customisable using a configuration file.

Using Vdraw, the bottom row of icons selects the major tools. When you have selected a major tool the tool's icon will be highlighted and a new panel of modes for this tool will appear on the right hand side of the display. You may then use these mode icons to select the

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features of the tool you want to use. The major tools are (from left to right) along the base of the screen:

Line mode - Sketching, Straight lines, Horizontal or Vertical lines, and various line styles.

Box mode - Hollow boxes, Solid boxes, and area inversion.

Curve mode - Circles, Circular arcs, Single control point Bezier curves, and Dual control point Bezier curves.

Spray Paint - While you hold the select button down and move the mouse you spray paint in the current pen colour. The radius and density of the spray is adjustable.

Brush mode - first make some cuts in the cut mode, then this icon allows you to brush with an area you have cut from the drawing surface, or a cut you have just loaded.

Magnify mode - Upon entry to this mode the screen is redrawn at 8x magnification. The usual kind of single pixel editing is available in this mode.

Text mode - This icon leads to commands to select and change text styles, and move the text you input around the screen.

Font mode - Allows you to select the font you wish to use for text typing.

Lock mode - Permits the user to lock areas to prevent them from being permanently damaged.

Cut mode - a facility to cut areas from the drawing screen for use as brushes or to selectively save parts of the screen.

Erase mode - from this option icon, ALL erases everything to the background colour -or just box areas you have selected to erase.

Palette mixer - from this, you can select the colour to be adjusted with the drawing pen icon and the colour palette across the top of the screen - remix the colour with the sliders provided.

"From print mode, the ALL icon tells the printer routine to print the full bitmap."

Print mode - This mode is unusually flexible, and bears close examination before use. The BOX icon tells the printer routine to print only a boxed area. The default area is the current window view. However, you can just box any area and then that area alone will be printed.

From print mode, the ALL icon tells the printer routine to print the full bitmap. The AS icon tells the printer routine to AUTOSIZE the printing. This mode makes the printed output have the same aspect ratio as the screen displays. The MULTIPAGE icon is used if you want the output to appear as a number of pages that you cut and paste together. The scaling icons select the expansion factor for the X and Y directions to be applied to the bitmap. This allows you to use a bitmap that is (say) 1/4 the area of the full size printer's page and have a full page printout without any distortion of line thicknesses.

Overall, it is well worth the suggested Shareware donation of $20 Canadian.

S.W.

Both mCAD and VDraw are part of Mega Pack 3, a set of three disks of graphics utilities available for £6.00 and supplied by:

Purple PD, 1, Bartholomew Road, Bishop's Stortford, Herts, CM23 3TP. Tel: (0279) 757692

ToolBox

Tools for the programming trade - Paul Andreas Overaa reports

ToolBox is a new product designed for Amiga programmers. Developed by Mirage Studios in the U.K. it is essentially a user-configurable programming environment which lets you integrate the editing and compilation phases of the program development cycle. Most compiler users would be working with at least 1 meg and two disk drives, but ToolBox itself will happily run on an unexpanded A500.

ToolBox is based around a well thought out editor which includes a high-level configuration language. This language lets you create the editor of your choice, i.e. you build-in the features appropriate to your particular needs. The language used to achieve this is block structured and easy to learn (see figure 1 for an example)... it includes control statements such as 'if-else' and 'while', and it also supports the use of local and global variables. User defined functions can be set up and in addition to that there is a library containing over 100 pre-defined functions. Using the ToolBox language you can define the function keys and the numeric keypad, all of Intuition's pull down menus, and most of the gadgets around a toolbox window. You can also control how the user interacts with the editor through the keyboard, mouse or Intuition requesters.

Using Toolbox

As an example, the default configuration on the release disk includes an 'Aztec' menu containing options for compiling assembling, linking and debugging. Each option invokes a corresponding Aztec C development tool which then operates on the file currently being edited. If you select the compile option when editing a C program, the C compiler is loaded, it reads the program from ToolBox and generates a new edit window containing the results of the compilation (including any errors).

As far as the editor itself is concerned it has all of the usual search and cut/copy/paste type facilities and there are a host of other useful extras available including date insertion, indenting options, case conversion, linking external programs, expansion of partially complete C statements etc. The ToolBox does incidentally present itself to the system as a device and the manual (which is supplied on disk) includes all the necessary 'info'.

Text editors, and for that matter compilers and assemblers etc., are strange beasts as far as sales market characteristics go. Most people, and I must plead guilty here as well, tend to find products which they like and then stick to them like glue almost disregarding the alternatives. The early A1000 Amiga days saw the appearance of several configurable editor programs which, for various reasons, failed to stand the test of time so you can never be too sure how newer products will fare in this applications area. Where does ToolBox stand in relation to all of this ? Firstly, I for one liked it a lot and (more to the point) think it is a program which from a sales point of view could do quite well.

Conclusion

ToolBox's price is very good value for the money. Even if you are happy with your present programming environment, you should have a look at this piece of software. Don't make this mistake of thinking that ToolBox is just another configurable editor - it isn't. The overall ideas are sound and the product looks to be well implemented. Of the various Amiga programs of this type which I have come across over the last few years I think ToolBox could well turn out to be the best.

P.A.O.

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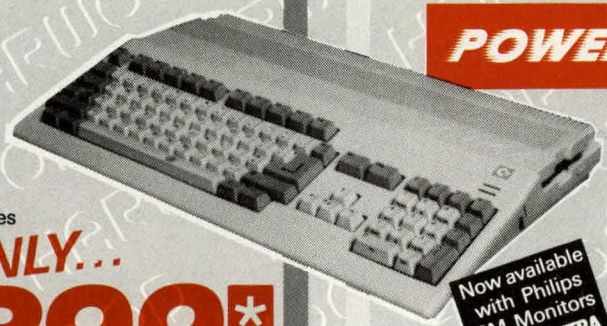
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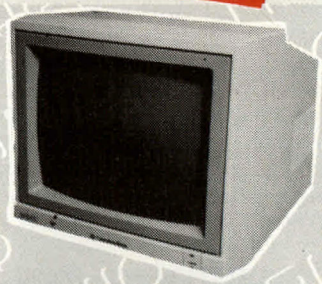
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The Citizen HQ

When reviewing hardware, no matter how "well" a product performs, price is the determining factor whether or not you will purchase it. Retailing at just under £500 for the basic unit, Citizen's HQP 40 looks initially, a somewhat expensive compared to the competition. For instance, arguably one of the best all-round 24 pins to date is NEC's Pinwriter 2200, which sells for over £100 less and (on paper at least) appears similar, although slower. However, Citizen's offering

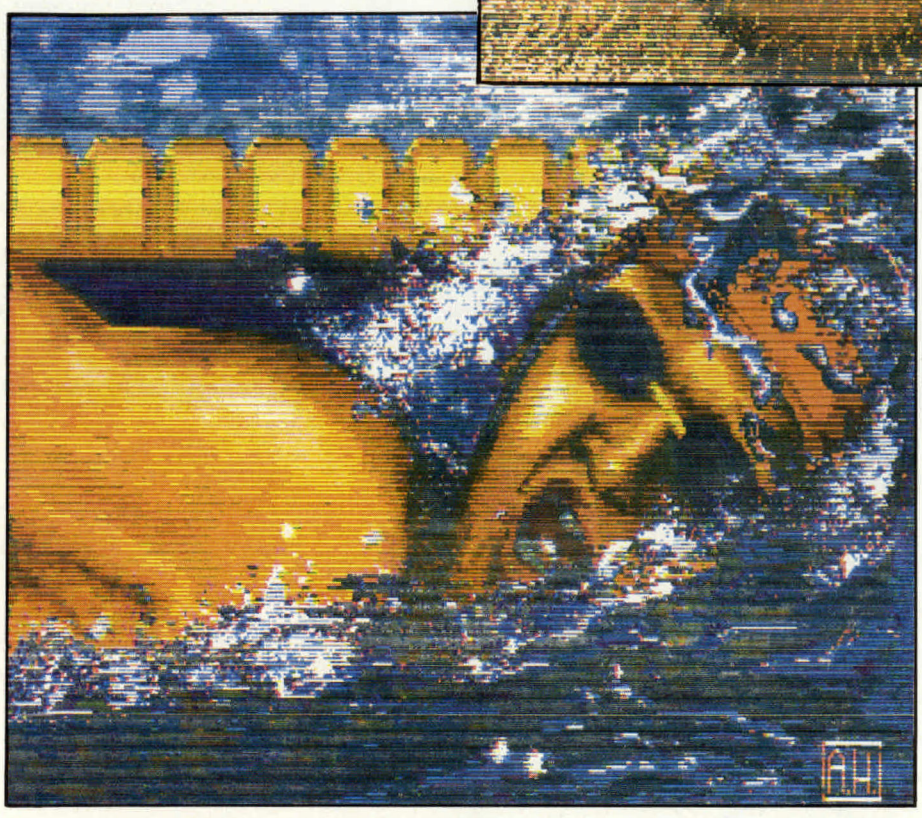
"Now replace the bail arm and off you go."

does have many good features, and at first glance, the unit appears much like any other dot-matrix design - albeit somewhat on the large side.



Paper Functions

One striking peculiarity was the apparent absence of a bail arm, the device used to hold the paper against the platen. In fact, the unit does have a bail arm, of sorts, but it is not in the usual place. The more usual passive arm has been replaced by a driven one that sits underneath the paper where it passes out of the case.



This has a distinct advantage over the older system, especially when using auto-loading on some systems. What inevitably happened was this: you flick the bail arm forward, drop the paper in and the platen winds it through. Now replace the bail arm and off you go. Well, that is the theory. More often than not in practice, the paper winds through and gets snagged against the bail arm.

The disadvantage would seem to be, when using single sheets you would have to have more of the paper loaded than would normally be necessary; subsequently, in effect, you are reducing the number of lines per page. As it turns out in practice, the paper feeds through quite happily, very neatly saving all the fiddling usually associated with this operation. My only cavil with this is the lack of a paper parking feature, like on Star's budget 9-pin, the LC-10. Perhaps Citizen will include one in a future model.

P 40 Printer



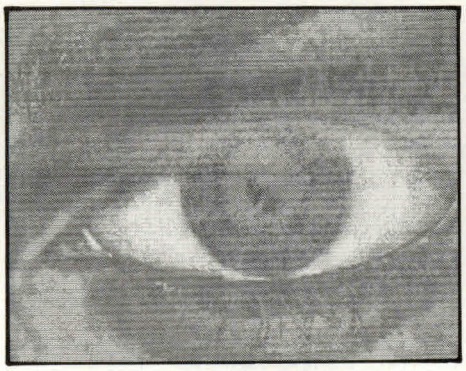
Font and Emulation Cards

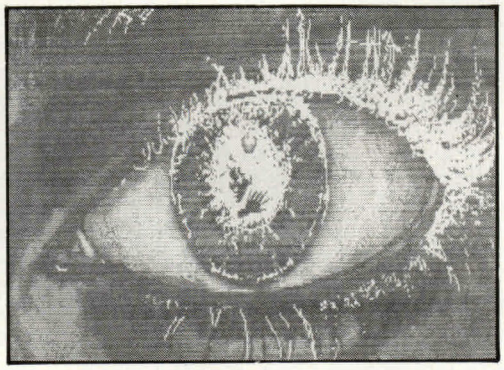
Perhaps the best feature of the Citizen is its built-in almost infinite expandability in the form of special font and emulation cards. These neat little cards, which are about the size of a credit card, are supplied as extras, and in theory at least, can give the user an almost limitless range of options.

In practice this is not quite true as yet. The only emulations currently available as extras are for the IBM Proprinter, Qume Sprint 11 and Diablo 630. To be fair though, an enhanced Epson LQ emulation comes as standard. The range of extra fonts supplied for review was similarly limited to two: Helvetica and Times. The printer's in-built font is the typewriter-like Courier.

Surprisingly there is a problem with the font cards that the manual negects. The card cannot be selected whilst the printer is in the default (Epson) mode. It is necessary to select the alternate (IBM) emulation by altering one of 32 DIP switches, which then allows you to select the card.

The main problem with this procedure is you have to change the printer driver you happen to be using at the time. The IBM emulation will not work correctly with an Epson driver. Of course, you can only do this if you have the IBM emulation card fitted. In practice, this is rather less troublesome than it all sounds, but it is an inconvenience.





Colours

Like many other features of the HQP40, colour printing can be fitted as an option. Although this may make the machine sound like a DIY kit, the design of the system makes colour printing work well.

The colour kit itself comes in two parts - a ribbon and a stepper motor control unit. The hardest part of fitting this is trying to decipher the instructions, which are, in typical style, awful and not worth mentioning. Once you do fathom out how to fit the motor it can be fitted in about 30 seconds; it literally drops into place. The colour ribbon is fitted similarly easily.

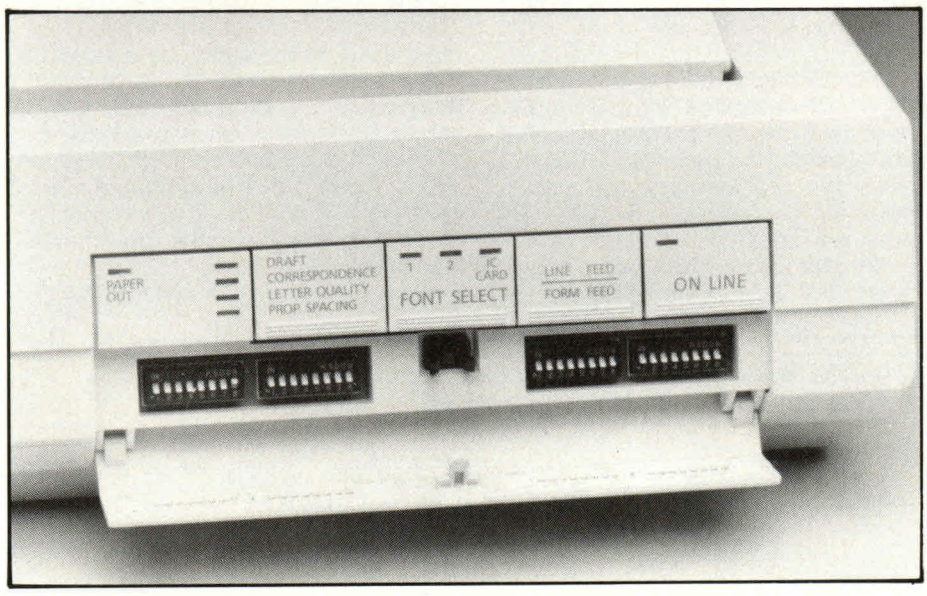
Colour printing from the Amiga is largely improved with Workbench 1.3, and the HPQ40 responds well to the Epson LQ printer driver supplied on the Extras disk. As you may expect from a impact dot-matrix design however, the output is less than amazing.

The usual "banding" effect is still present, although this can be improved slightly by moving the tractor into the pull position as Citizen recommend. This takes about 2 minutes with practice, and the hardest part is re-threading the paper!

Overall, the HQP40 is unlikely to win any prizes for ingenuity or output quality. For a 24 pin printer it delivers the goods quite satisfactorily, but that is all. What makes it stand out from the rest is the ever expanding range of options made possible from the addition of emulation and font cards. Lastly, could someone inform Citizen about the Amiga, since their manual, which is aware of BBCs and STs, states Commodore computers need a special interface!

M.S.

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MIDI Part VIII

Paul Andreas Overaa pulls a programming trick out of his bag of MIDI magic...

Collecting and using MIDI data in real time, i.e. as it is being received, needs a certain amount of care. The main objective is to do the necessary processing in the shortest amount of time. Reading the data itself is straightforward because the Amiga's serial device takes care of all the awkward stuff.

Most people, when they begin writing a computer program, will opt for a fairly simple initial framework. As the program develops, ideas may get revised and the net effect is that the program grows using an 'incremental testing' approach. In general this has quite a few benefits but the philosophy includes a potential trap exists as far as MIDI programming goes.

If your analysis of the MIDI data is based on a 'if-then' type of testing then what happens is that as extra facilities are added, more analysis must be done to identify the message classes, sub- classes, active channels etc. As your program grows in complexity, the time needed to sort out the data needed by your program will also grow. The danger is that are you will reach a point where the time taken to analyse the messages may create difficulties not seen in your early prototype programs.

To avoid these problems we need three things: Firstly we want some way of recognizing an incoming MIDI message and deciding whether it is useful to the program or not. Secondly, if the message is useful, we want to be able to move directly to the routine which is going to process it without having to carry out a series of if-then type tests. Thirdly it would be useful if we were always able to extend the range of MIDI messages that a program can use in a way which avoided the time penalty incurred by extended if-then testing.

Abracadabra!

The magic trick that solves all of these problems is an addressing technique called 'computed addressing'. There's two main forms of computed addressing: hashing; and indexed addressing. The little trick we will look at is based on the use of indexing to find the address of an appropriate sub-routine from a predefined table of sub-routine addresses.

MIDI messages are characterised by the first byte of the message, the status byte. The reason for this is so that we can use a status byte index to identify the address of the appropriate handler routine for each particular class of MIDI message we wish to use; and, to use a null handling routine to ignore messages which are of no use to the program.

MIDI status bytes will range from 128 - 255 decimal and these values can be used as an index into a table providing the address of the appropriate routine to be used. There many variations on this theme; this example is just one of many such approaches that could be devised.

If we used the status byte directly as an index we would need an address table containing 256 four-byte entries. 128 of these entries would refer to non-status bytes, ie. MIDI data bytes, and there is an easy way to eliminate this part of the table. Once we know that we are dealing with a status byte, we clear bit 7 and use a 0-128 based index. If each status byte handling routine is designed to collect the remaining bytes of the MIDI message then you might think that this table arrangement should never see real data-bytes (i.e. incoming bytes whose values are in the 0-128 range).

Unfortunately running status and the possible reception of 'rogue messages' makes it necessary to assume that data bytes will be received. The way I handle this problem is to use a table containing 129 entries..... the first entry contains a data byte indirection vector, i.e. an address of a routine which will handle any data bytes which are received.

Initially this vector points to an error routine, but individual MIDI message handlers are free to modify the address in order that incoming data bytes can be directed to specific routines. The remaining 128 table entries form the main status-byte indirection table.

You can use the same ideas in either ɔr assembler but for maximum speed s best to work with 68K assembler. I have sketched out some skeleton 68K code which should show how you get from a particular MIDI byte value to the corresponding table address.

Code Tips

Firstly we set up register a5 as the base address for the table operations. All handler routines are written as individual subroutines and normally such routines would terminate with an 'rts' instruction - pulling a return address off the stack and returning control to the instruction which follows the original subroutine call. With these types of table operations we are really creating a 'case structure' based on computed addressing and it is simpler, and quicker, to terminate the routines with a direct jump to a common exit location rather than continually pushing and pulling a fixed address on and off of the stack.

Anyway, getting back to the controlling code, this is how it works: having read a MIDI byte we look at bit 7. If it is a data-byte (bit 7 low) control gets passed to the first entry in the table (the current data-byte indirection handler). If it is a status byte (bit 7 high) we clear bit 7 and then use the 0-128 index produced to access the appropriate MIDI message handler routine. Because each table entry is four bytes long, we have to multiply the index values by 4 before actually using them. This is easily done by left shifting the index twice.

The 68000's indirect indexed addressing facility allows us to pass control directly to the required routine. The reason for the extra 4 byte displacement used on the status-byte index is that it enables us to skip over that first table entry, the data-byte indirection vector. Once any given message handler routine is finished control gets passed to the end of a loop arrangement (i.e. the ENDCASE label) which checks an exit flag to see whether the routine should terminate or not.

P.A.O.

```
*-------------------------------------------------------------------*

        Example scheme for reaching MIDI message handling routines using an
        index that is derived from the values of received MIDI status bytes.


BEGIN           move.l £INDIRECTION_TABLE, a5  base address of table

GETBYTE         here you'd get a byte of MIDI data, check everything is
```

```
                O.K. etc. (I'm assuming it would go into register d0)

                bclr    #7, d0                  look at bit7 (clear at same time)
                beq     DATABYTE                to see if it's a status byte
                                                IF IT IS WE WOULD.....

STATUSBYTE      asl.w   #2, d0                  multiply by 4, get the required
                move.l  4(a5,d0.l),a0           address from the table and then
                jmp     (a0)                    execute the right routine

DATABYTE        jmp     (a5)                    here we always use first entry
                                                of table - and it'd be convenient
                                                if various routines could modify
                                                this address to suit their own
                                                purposes !

All handler routines would terminate by jumping to the following ENDCASE
label. Probably the easiest way to implement the termination process is to
adopt a 'global' exit flag which any routine can set, like this....

ENDCASE         tst.b   exit_flag               do we want to quit
                beq     GETBYTE                 NO, so go back for more data !

                rts                             exit flag set so quit the routine

* ------------------------------------------------------------------------ *
* Somewhere along the line you'd need some variables available, e.g.....

exit_flag       dc.b    0
* ------------------------------------------------------------------------ *

* ------------------------------------------------------------------------ *

* This is the 'folded' address table which enables us to access
* routines based on the VALUE of the MIDI byte. The FIRST entry
* is the data byte indirection vector, the remaining entries form
* the status byte indirection table.

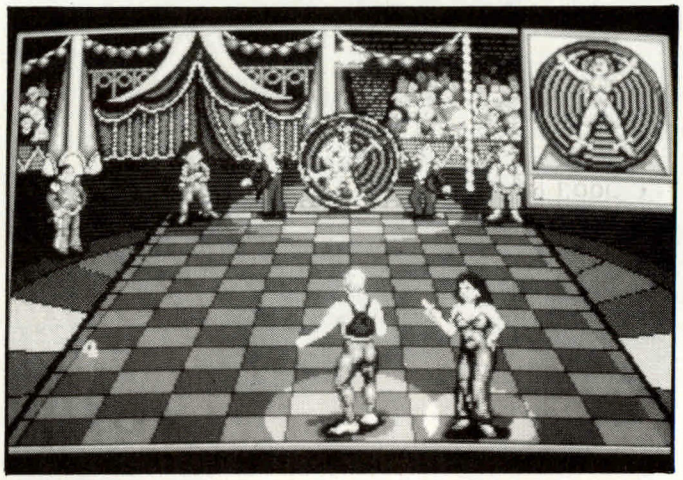
* NOTE... I've made the first entry in the table the 'error_soak' BUT
          you wouldn't do this until you'd implemented all message
          handlers. Make it a reference to 'soak' to start with then
          any status bytes AND data which you don't want to handle
          will be ignored !!

INDIRECTION_TABLE   dc.l error_soak <--- modifiable - example only !
                dc.l soak,soak,soak,soak,soak,soak,soak,soak,soak,soak
                dc.l soak,soak,soak,soak,soak,soak,soak,soak,soak,soak
                dc.l soak,soak,soak,soak,soak,soak,soak,soak,soak,soak
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                dc.l soak,soak,soak,soak,soak,soak,soak,soak,soak,soak
```

continued on page 80

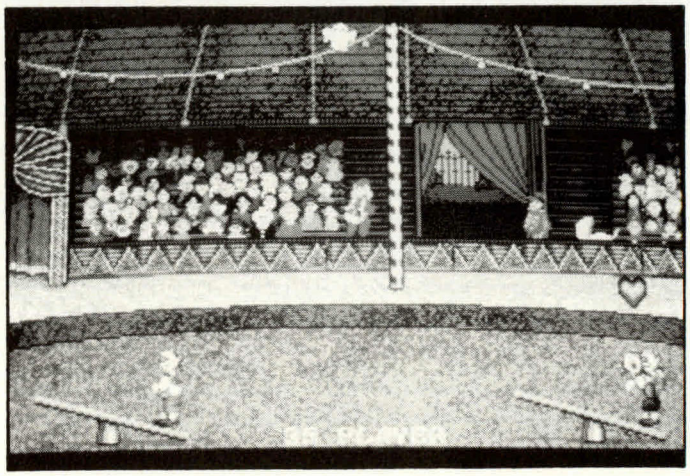
Circus At

Rainbow Arts



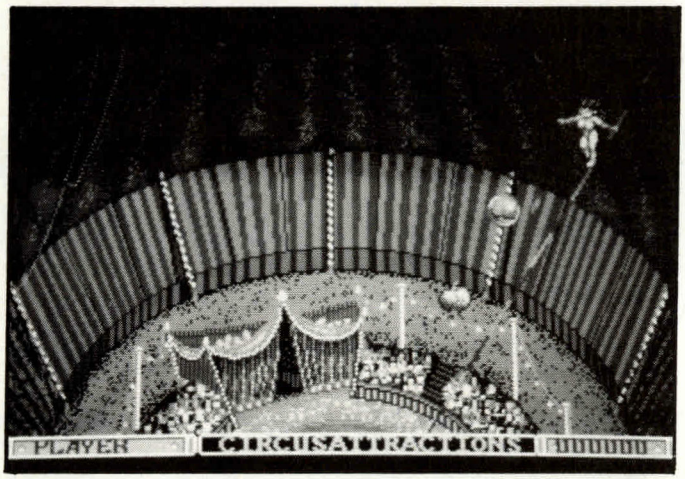
The traditional travelling circus still holds bags of excellent subject matter for a computer game. The old coin-op Circus Charlie and the more recent Circus Games are the only two previous attempts that spring to mind. Programmed by Golden Goblins, Circus Attractions is Rainbow Arts' contribution. Five acts make up the show: trampolining, tightrope walking, juggling, knife throwing and the jumping clowns. In a similar style to the Epyx Game series, any of the acts can be practiced indefinitely or played in a sequence.

An enthusiastic gymnast raises his hand to let you know he is ready for the first act. The trampoline you are given is no more than a few feet across, but the expectant crowd demand you perform a number of forward and backward somersaults regardless. The shakily translated instructions are extremely vague and can leave you wondering just what it is you are doing wrong. This and every other acts has a two player variation. In this case, the two performers each have their own trampoline, but are forced to somersault in sync with each other. With a more user-firndly control method and accompanying instructions, this first game could have been a lot more playable.



Getting the hang of tightrope walking is a lot less hassle. The strapping athlete of the trampolining is replaced by a nimble young lady. From the top right of the screen to the opposite corner, she carefully walks at a constant pace along the high wire. You are responsible for keeping her balance, correcting her as she teeters left and right. Clubs, balls and other bonus items can be plucked from the air for extra points, and a handstand always goes down well with the crowd. Doubling up with a friend puts one on the others head.

Juggling is not something you see simulated on the computer everyday. Come to think of it, I can only remember seeing it once, on one of the early "Time Out" hand-held LCD games. An assistant



tosses you up to six balls which are automatically passed to your right hand. You the have to tap your stick left to throw them back to your other hand. A few more points can be clocked up by accepting a club, or a blue ball, balanced and caught on your foot. The choice of dual player interaction adds to the fun.

A pretty girl strapped to a rotating whell holds her breath for the next act. Get the crowd on the edge of their seats by throwing a handful of knives in her direction, aiming to hit the target millimetres from the girl's flesh. Make sure what your assistant is handing you is actually a knife. Accept a stick of dynamite and the consequences are obvious.

The jumping clowns is the final act. Three clowns catapult each other through the air with two seesaws. Directing the clowns is a tricky business. To keep the routin going, they must land directly on an empty end of the seesaw. Over or undershoot, or land in the arms of another clown and you are forced

tractions



to end it all. A ghost switches randomly between three positions, stunning, any clown who hits him. In vour favour, more bonus items can be caught in mid-flight.

Golden Goblins have come up with some great ideas with Circus Attractions. The quality of the programming is top notch, which shows through in the totally smooth graphics. All few of the sprites are approachioong arcade quality, and the general look is suitably colourful. The trouble is that there are too many missed chances. An option for a multiple player competition as in those classic Epyx games would have added a lot. The team mode is a nice idea, butr it needs expanding upon. Additional play-testing in the juggling and especially the trampolining sections was needed, and a few more acts would have been nice. Circus Attractions is another of those games that nearly was, but lets itself down once too often.

T.H.

Graphics: 8
Sound: 6
Playability: 7
Value: 6
Price: £19.95



The New Ze

Ocean

One area in which the Amiga lags behind the Japanese consoles and coin-ops, is cute and highly playable platform games. Due to an infringement of Nintendo's Super Mario Bros. copyright, Great Giana Sisters was taken off the shelves soon after its release. That left Bubble Bobble as the sole member of the diminished family. Masters of the art and originators of the Bubble Bobble coin-op, Taito, were also behind Ocean's contribution: The New Zealand Story.

Instead of a screenful of text explaining the plot, you get an animated graphic intro. A bunch of fun-loving baby kiwis are seen skipping, playing and generally making merry, when along comes an enormous blue walrus! The nasty lard-ball chases them off-screen, before bundling the poor things in a big sack and disappearing. Unnoticed in the panic, Tiki (that's you) wriggles free. The only option is to go to the rescue of your pals.

The walrus has imprisioned the kiwis each in their own magical cage. These cages are found at regular points along the way, and all that's needed to free the birds is a touch from yourself. Brainwashed minions of the walrus are posted along the route. Some scurry up and down the platforms in the usual manner. These are easy pickings for your bow-launched arrows, but rather than collapsing in a bloody heap when shot, the enemies turn into little fruits to be collected for extra points.

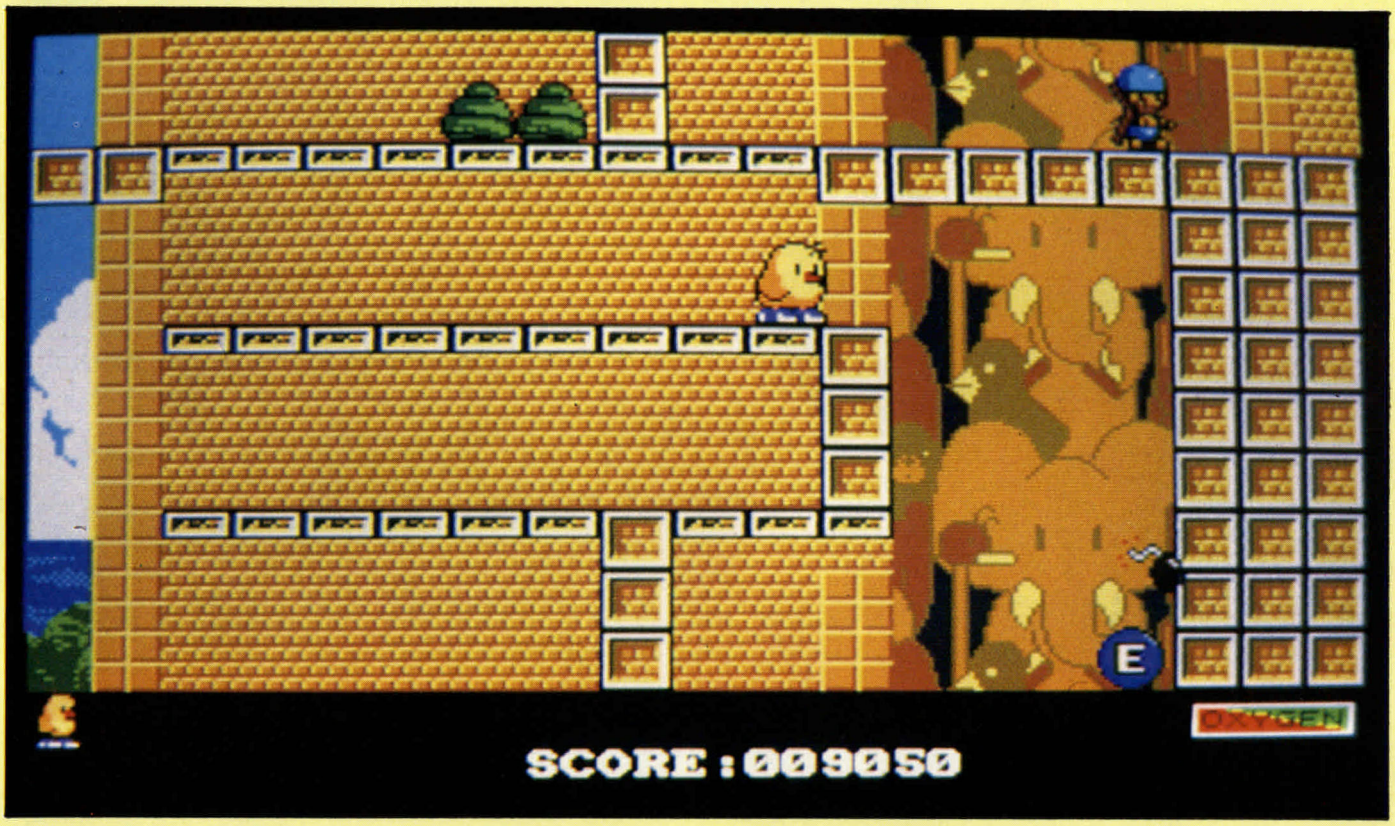
Your in-game persona can jump a short distance into the air, but often that is not enough. Some enemies appear from magical portals in mid-air. These fly around on levitation platforms which you need to reach the higher nooks of the levels. Careful shooting will dismount the rider, leaving his hard-



ware for your own use. The trouble with this is that the levitation platforms are easily punctured by the enemies' shots. Where flight is necessary, you'll usually find rows of spikes lining the floor, so staying airbourne is essential. At times you are offered alternative flying machines, such as the hot air balloon, or the wierd metalic contraption which



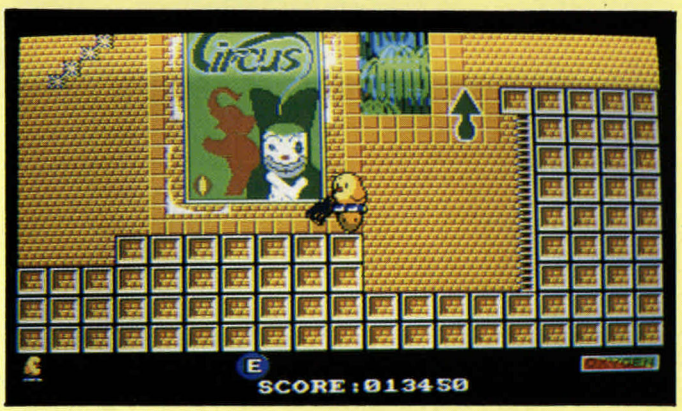
aland Story



can be attached either to your head or feet.

Loads of extra little features can be found along the way. Now and again you have to tog up with a mask and snorkel to negotiate the water tanks. The end of level whale seems much like any other "mothership", until he swallows you up and the battle continues inside his belly!

Choice have done a superb job of the conversion. Lazy programming often leads to sub-standard scrolling in a lot of arcade conversions. Although that of New Zealand Story is not perfectly smooth, it's easily acceptable, and has none of those oversized status panels to cut down the play area. Tiki is such a lovable character, full of expression. Watch as, panic-striken, the little bird flaps for his life as he runs out of air in the sub-aqua sections! Hang around too long and a "Hurry up!" warning appears. Soon after, a vicious imp puts a stop to any further loitering. Sound is good throughout. Jolly jingles, tunes and tinkling effects were the obvious choice,



and worm their way into your head before long.

The New Zealand Story is just what the Amiga needs at the moment: a fun game, with quality graphics and sound, but one in which gameplay takes top priority. Make sure you get hold of a copy.

T.H.



Graphics: 8
Sound: 7
Playability: 9
Value: 8
Price: £24.95

Indiana Jones and the Last Crusade



Lucasfilm Games

The Temple of Doom was generally regarded as a bit of a missed opportunity in its arcade format, and consequently recieved only mod erate praise when the home computer versions were released. The Last Crusade has given Lucasfilm and US Gold a second bite at the cherry, but this second game looks remarkably similar to the first.

The film opens with a teenage Indy on a excusion with the scouts. Jones stumbles upon an unscrupulous archeologist who has just unearthed the Cross of Coronado. Indy knows that the museum is the rightful place for the cross and is not prepared to see it fall into the hands of this greedy character. Swiping it from under his nose, Indy makes off into the desert. Tiertex have translated this into a scrolling platform game. You begin the game at the top left corner of a massive cave. Rickety wooden platforms set up by the archeologists provide a dangerous means of getting around. Ropes hung from the ceiling connect the various levels.

As soon as you enter the cave, the enemy are on to you. A knife-throwing red indian is your first adversary. Pass him and you'll notice the light fading. This is a key element of the first stage, which has the effect of a constantly decreasing energy supply. If your torch burns out, you lose a life, so picking up new flames along the way is essential. There are also a number of other ways you can meet your demise. Shots from gunmen deplete your strength, as do long falls. A touch less realistic is the danger of death on contact with any enemy. Once you find your way out of the cave, there's a short sequence in which you escape along the top of a speeding circus train, dodging the horns of rampant rhinos thrusting through the roof.

The remaining three levels interpret further scenes from the film in a similar way. The platform and ladders theme remains constant, with a few extensions and variations in each level. I especially like the way the screen sways around as it scrolls in the zeppelin scene. The final stage involves the discovery of the Holy Grail. The emphasis here is switched from mazes to the string of traps guarding the Grail.

Most of the sampled sound effects have been well chosen and executed, though a lot of the game is very quiet. Scrolling is fine, at the expense of a cut-down game screen. Both graphics and sound are pleasing, but the gameplay is flawed. The route cannot be varied, and the enemies appear at exactly the same place each time you play. Unfortunately, the upshot is that you tend to play on "auto-pilot" up until the furthest point you have reached. As a sequel to The Temple of Doom, it does well, developing the platform gameplay. As a whole new game, it's without the knife-edge tension to keep me coming back. Maybe you'll feel differently, so give it a chance and playtest it if at all possible.

T.H.

Graphics: 6
Sound: 7
Playability: 6
Value: 6
Price: £19.95

MENTOR

The New 'ANSI Style' C

Bill Harvey summarises the changes in C that you need to know

If you have joined, or are thinking of joining, the growing band of C programmers then you will have no doubt heard or read about ANSI C. Over the last six years the original K&R/UNIX style language has been the subject of an in-depth investigation by an American National Standards Intitute (ANSI) committee. Their findings are now complete and are about to be published. Some of the recommendations affect C's internal workings and will not affect the programmers at all, but there are some areas where new and revised facilities are offered and these will have a direct influence on what the C programmer can (or cannot) do. Perhaps the biggest changes have come in the way that functions are defined and declared so we'll look at these first.

Function Definitions

A function description can now include details of its arguments, i.e. the parameters used with the function. This extra information will make it easier for a compiler to detect usage errors and, because C has been recognisably weak on type-checking, this change is very welcome. We can illustrate the changes by looking at a short C function which calculates the volume of a tin can. In old style C the function would have been written like this.....

```
#define PI 3.14159
DOUBLE CanVolume (radius, height)
DOUBLE radius,height;
{ DOUBLE volume;
volume=PI*radius*radius*height
return(volume);
```

most C programmers would actually skip the volume variable and use the calculated result directly in the return() statement like this....

```
DOUBLE CanVolume (radius, height)

DOUBLE radius,height;
{return(PI*radius*radius*height); }
```

When we write this function in the new ANSI style format we would declare the radius and height parameters in this fashion.....

```
DOUBLE CanVolume (DOUBLE radius, DOUBLE
height)
{ return(PI*radius*radius*height); }
```

Old style arrangements will still work in ANSI C (at least for the moment), but it is obviously best to use the new format with any new code which is written.

The Standard C library

The ANSI committee have identified and defined a collection of functions which all ANSI compatible compilers should provide.

Most compilers will provide all of these and more and Lattice for instance offer ANSI functions, their own functions, and many UNIX/XENIX functions as well.

Keywords

Five new keywords - signed, enum, volatile, const, and void, have been introduced and the unused 'entry' keyword has been removed. Characters etc., may now be declared to be signed or unsigned as needed. The void keyword has been available for some time but now it is possible to use explicitly void * as a generic pointer type. Declaring an object as 'const' tells the compiler that its value will NEVER be changed. The volatile keyword is included to help those involved with memory mapped I/O etc. - it helps the compiler to deal with the analysis of redundancy by keeping memory location I/O references safe from the effects of the compiler optimisation processes.

Function Prototypes

The layout of a function declaration has also been modified and the new form, which is known as a 'function prototype', has to agree with the definition and the usage of the function in question so....

```
DOUBLE CanVolume (DOUBLE radius, DOUBLE
height);
```

declares a function which accepts two DOUBLE values, and returns a DOUBLE value. Parameter names do not have to agree and are in fact optional so the above declaration could just as well have been written as....

```
DOUBLE CanVolume (DOUBLE, DOUBLE);
```

Function Pointers

The use of function pointers in C is very powerful but can lead to some quite complex function declarations (due in part to the need to enforce proper operator priority using additional parenthesis). Under ANSI C, a pointer to a function can now be used as a function designator without an explicit * operator. I am unsure this particular change helps simplify the overall situation but here, for what it is worth is the effect of the change: If we define a function and an array of function pionters like this....

```
DOUBLE (*f[10][6])(DOUBLE); /* declare array
of function pointers */
DOUBLE FPStoKPH(DOUBLE fps) {return
(fps*1.097);} /* the function */
```

and then set the pointer into the array as follows....

```
f[0][0]=FPStoKPH; /* place one function poin-
ter into array */
```

then, whereas we would previously have used the function in this sort of fashion.....

```
y = *f[0][0](x);
```

we can now skip the * operator and write.....

continued on page 80

Skweek

Loriciels

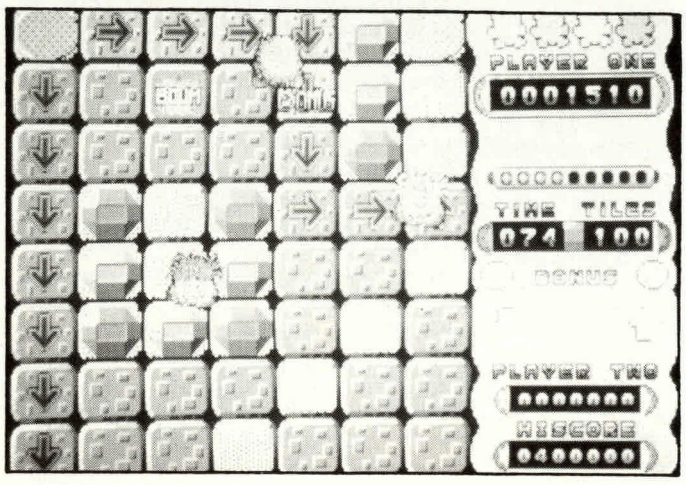
US Gold may have severed their ties with Rainbow Arts, but already that gap has been filled with a new distribution deal with Loriciels, the French software house behind the classy Porsche 944 simulation Turbo Cup. Realising that no-one can resist a "cutie game", they now leave behind the high-speed thrills of motor racing in favour of a little fluff-ball called Skweek.

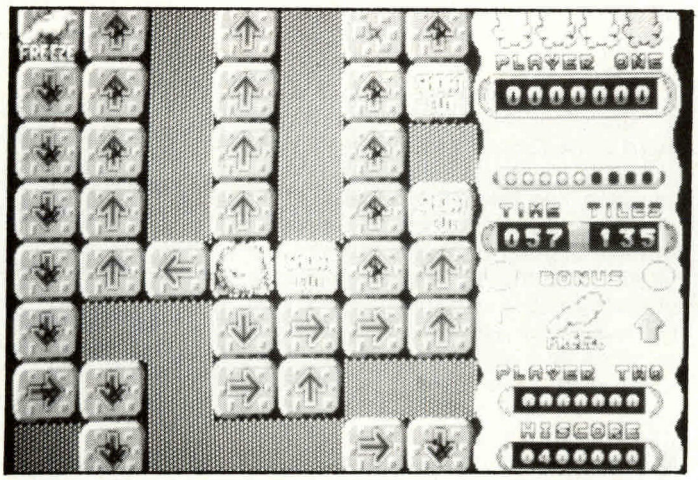
The story follows the traditional lines. An evil character invades the home of the Skweekettes, drives them out and keeps it for himself. His evil contaminates the pleasant pink of the land, turning everything blue. Some time later this nasty monster kicks the bucket, but leaves behind his loyal guards to continue the occupation of the blue land. Those poor little Skweekettes refuse to come home until all the blueness has been made pinky once again. Longing for the days of old, Skweek decides to reclaim Skweekland.

"Run over all the blue floor tiles to decontaminate them before moving on to the next level."

Returning Skweekland to its former colour is simple enough in theory. Run all over the blue floor tiles to decontaminate them before moving on to the next level. A band of brainless spooks and ghoulies supply the death-threat, wobbling aimlessly around the screen. Some tiles act as conveyor belts, others teleport you to the opposite end of the lkevel, explode on contact or put you into an uncontrollabvle skid. The baddies can be shot with an expandable internal gun, or just be avoided. With each level, the vertically scrolling arrangements of tiles vary, bringing with them a handful of bonus icons.

The game's simplicity means anyone can pick it up in seconds. The Pacman/Amidar style gameplay dates back to the roots of computer gaming, but is all good fun even so. The small, blobby design of thr sprites is a cop-out, but the constant use of rippling colour bars gives it all a bright look without over doing it. The predictably 'twee' music and sound effects are no great shakes, but then again, a Jean Michel Jarre sondtrack would be a bit out of place here.





Skweek is all very likeable, but as a full-price game it falls slightly short of the mark. Nothing much changes from one level to the next, and although simple games are often some of the best, Skweek is just a bit too simple. Pick one up for the kiddies only.

T.H.

Graphics: 6
Sound: 5
Playability: 5
Value: 6
Price: £19.95

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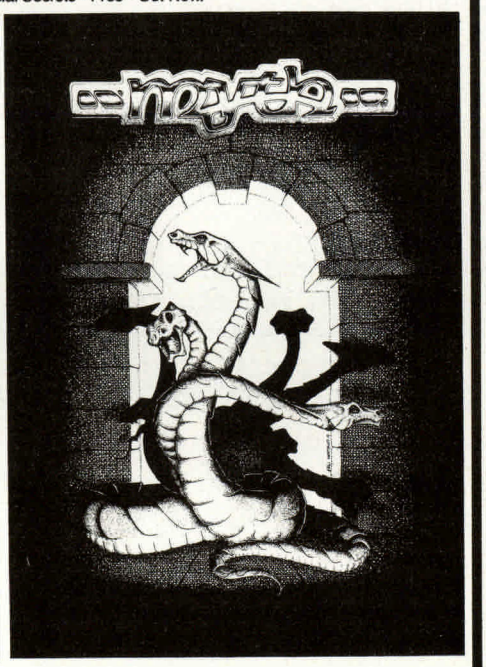
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continued from page 77

```
y = f[0][0](x);
```

The Preprocessor

The preprocessor is now explicitly 'token based' and has been extended and more carefully defined. There are new operators which allow you to concatenate tokens (##) and strings (#), and there are additional control statements like 'elif' which is the preprocessor equivalent of the else-if control structure. There is also a control line called 'pragma' which causes the processor to perform implementation dependent operations. With the Lattice compiler, which includes a pragma generator, the Amiga user will be able to automatically create pragma commands for accessing external libraries.

Other Changes

There are quite a few other changes which have been made. Most are fairly minor, some have been made just to make existing typical compiler behaviour 'official', and yet others just to tighten up the specification of the language so that everyone knows where they stand. All of these items will be covered in your compiler manual, but here are the main changes that have been made....

*** Structures can now be assigned, passed to functions and returned to functions.**
*** Applying the address-of (&) operator to arrays is now permitted and the result is a pointer to the array in question. The standard also allows the creation of a pointer just beyond the end of an array, and allows arithmetic operations on it.**
*** A unary operator + has now been introduced.**
*** Trigraph sequences introduced by ?? allow you to represent additional characters.**
*** Controlling expressions and labels in C's case mechanism (i.e. the switch statement) may have any integral type.**
*** There's been one or two changes to the use of Escape Sequences.**
*** Adjacent string literals will now be concatenated.**
*** Strings are no longer modifiable.**
*** The old shorthand assignment operators (such as +=) have vanished.**
*** Internal identifiers will now be significant to 31 characters or more. The minimum significance for exported items will remain at 6 even though many compilers offer more.**
*** Unions can now be initialised**
*** Automatic arrays, structures, and unions can be initialized although there will be some restrictions.**

Most compiler manufaturers have already made most of the necessary changes and will do their best to see that you are given a proper ANSI environment to work in. For the most part the changes have been welcomed by programmers and the general concensus of opinion is that they will make a popular language even better than ever.

B.H.

continued from page 71

MIDI Part VIII

```
                dc.l soak,soak,soak,soak,soak,soak,soak,soak,soak,soak
                dc.l soak,soak,soak,soak,soak,soak,soak,soak,soak,soak
                dc.l soak,soak,soak,soak,soak,soak,soak,soak,soak,soak
                dc.l soak,soak,soak,soak,STOP,soak,soak,soak
*-------------------------------------------------------------------------*

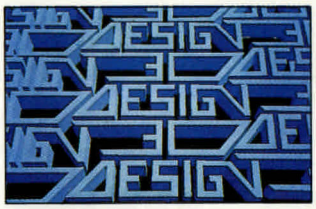
                EXAMPLE LAYOUTS FOR MESSAGE HANDLERS

* The following routines are performed when the appropriate MIDI
* byte is recognized.  A general 'soak' routine is available so
* that we can ignore bytes which we do not wish to handle. As an
* example I've inserted a routine which sets the exit flag when a
* MIDI STOP status byte is received !


error_soak      error handling code goes here
                .
                .
                .
                .

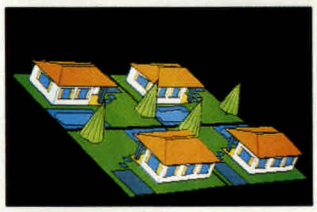
                jmp     ENDCASE         shouldn't be data bytes
*-------------------------------------------------------------------------*
soak            jmp     ENDCASE         effectively ignored
*-------------------------------------------------------------------------*
STOP            move.b  #1,exit_flag    MIDI stop recognized
                move.l  #0,d0           normal exit
                jmp     ENDCASE
*-------------------------------------------------------------------------*
```

Figure 1: Example code for a 68K status byte indexing arangement



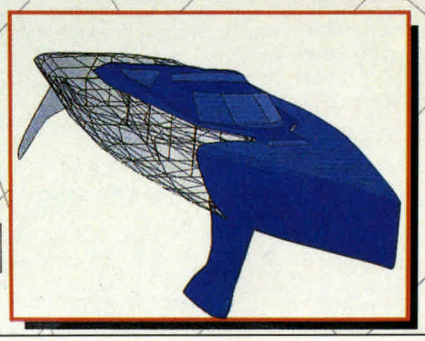






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BY ARNAUD RIBADEAU DUMAS



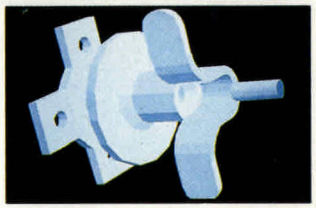
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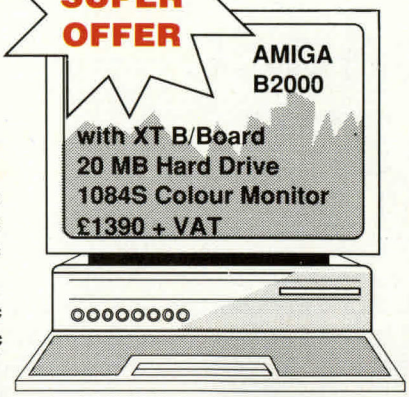
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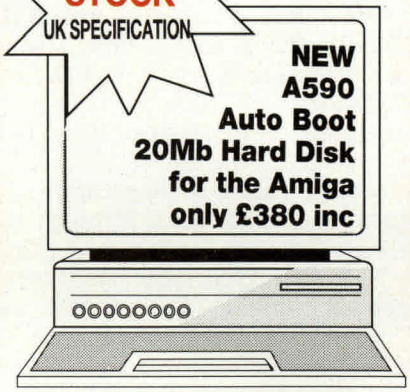
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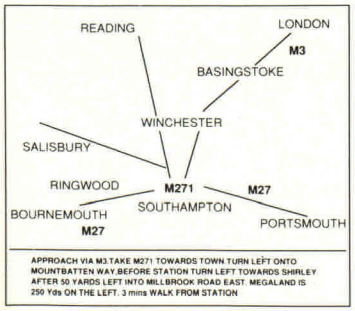


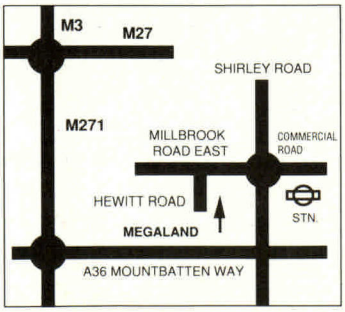
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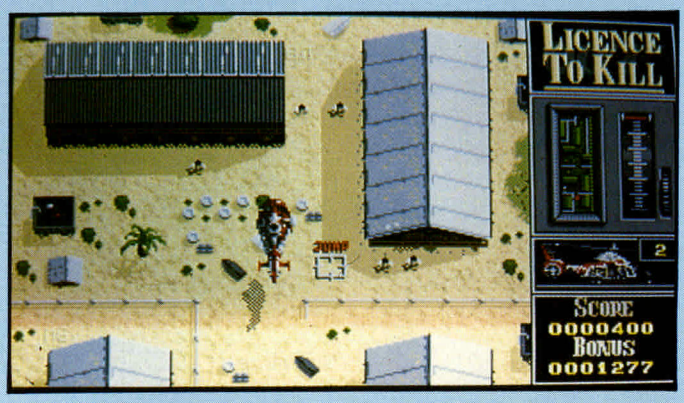
Licence To Kill is the first Bond film to get a "15" rating! Bond gets his licence to kill revoked and storms off on a personal mission for vengeance! This should make a great computer game! Well it should have...

Domark bravely chose to include eight of the paciest sections of the film. Notorious drug smuggler Sanchez has really got 007's goat. Not only has he made millions from his illegal dealings, but he's just murdered one of Bond's best friends. As in the film, the game has you (as Bond) on the seemingly endless tail of Sanchez. Each of the eight levels are played over vertically scrolling backgrounds. The first is a standard shoot 'em up with a slight difference: the altitude and speed controls are one and the same. You have to watch out for tall buildings and power lines when flying at low level, but the easiest survival tactic is just to speed through the middle. The height of the ground features is only clear through trial and error, and the controls just confuse matters.

Leaping from the helicopter, Bond continues the chase on foot. This would have been a straight Commando clone but for its strange sight–alignment system. The sight arcs through 180 degrees, and must be reset each time you alter your fire direction. This is a little more successful than the altitude/speed controls of the first section, but breaks down the action. Further death–defying feats of 007 include attaching a helicopter winch to the tail of a light aircraft, waster–skiing barefoot behind a seaplane, and the final chase scene involving 18–wheeler tankers.

Graphics are small but neat, and the scrolling is fair. The Bond theme is none too faithful and the effects unadventurous. Frustrating and fiddly sums up the gameplay. Licence To Kill is the best of the Bond games so far, but that's as good a recommendation as I can give it.

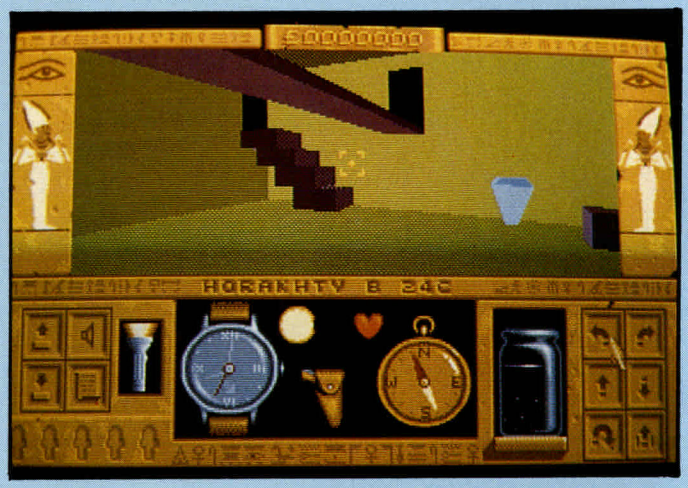
Overall: 51%



Total Eclipse

Incentive

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You enter the pyramid to find a labyrinth of chambers. Stairways, catwalks, doors and hidden switches are everywhere. Time is tight, and the temperature is rising. Your small water supply has to be used sparingly, as do your torch batteries.

The worlds of Driller and Darkside gave a lot of opportunity for real exploration and discovery. Total Eclipse is more maze–orientated due to its many small locations. I found the varied locations of the first two more interesting, but at least Incentive have come up with something a bit different. Freescape has run its course as far as I'm concerned, but newcomers would do well to give it a bash.

Overall: 62%

Wicked

Electric Dreams

The universe is being taken over by evil. If you don't do something about it, wickedness will soon rule the cosmos! The cleansing of the universe

continued on page 96

MENTOR

Intuition

Part V

Mike Nelson continues his exciting series with program selection

Over the last two months, I dealt with setting up menus and also processing the selections via the IDCMP interface. The menu system is complemented by gadgets as an alternative method for making selections in a program. Gadgets are Amiga-speak for icons - small graphical representations of program options, functions or selections. They are used extensively in Intuition-based programs and also by the operating system to control windows and the Workbench. The requesters which appear to remind you of impending doom with disk errors also contain gadgets for "Cancel" and "Retry". The Preferences program uses gadgets entirely and is an excellent example of how they may allow the user to simultaneously view many different attributes and only change one. Imagine the alternative: you would have to go through each individual preference (date, time, mouse double click, repeat etc) before getting to the print font which was all the user wanted to change! Additionally, without icons, several of the preferences such as the double click time would be very difficult to represent in a meaningful manner to the user.

Gadgets are selected by clicking the left mouse (select) button with the pointer located over a specific "hot" area around the gadget. We will see how to set up these gadgets by examining the system data structures and also how Intuition reports what is going on through the ubiquitous Intuition Direct Communications Message Port (IDCMP). The program I have written to demonstrate gadgets uses a Workbench window to provide a simple drawing area for the user to sketch freehand and draw lines in the four Workbench colours.

Throughout Intuition, it is apparent that considerable effort has been put into the design of the system by the programmers for other programmers. Again, there are very few constraints regarding what you can and cannot do with gadgets. The shape of the image, its location on screen and the type of information it represents are all under your control and are relatively easy to use once you understand a few basic principles. Note that Intuition does not directly support gadgets in screens, only windows and requesters. This is not as big a problem as it may seen at first, since BACKDROP windows may be employed to "pretend" to be a screen, whilst maintaining window features such as an IDCMP. The Workbench is actually implemented as a BACKDROP window with the icons for disks being gadgets.

System gadgets are used to control windows. These are the sizing gadget, depth arranging gadgets, window close and the drag bar. These are all automatically invoked by Intuition) all you have to do is specify in the NewWindow structure which system gadgets you want for your window. Intuition does the rest and also handles the selections of these gadgets, informing you (if required) about what is going on. This has been covered previously in the articles on the IDCMP.

Application gadgets are used by your program in almost any way imaginable (and also in a good few unimaginable ways in some programs!). Boolean-type gadgets provide a simple true/false statement which can be used in a program in a variety of ways. In addition to the obvious "Yes I really want to load this file" style of input, Boolean gadgets can also tell you "I'd really like to change the current colour to red and draw a circle until further notice".

Proportional gadgets are extremely useful in a variety of roles. Going back to Preferences again, the window has several examples of this type of gadget to change the screen colours, key repeat speed etc.

String and integer gadgets are also commonly used to get character information. The idea of the WIMP environment is to avoid the keyboard but there comes a time when your program must ask for a filename. For instance, the "Rename" option on the Workbench menu uses a string gadget for such a purpose. Intuition takes care of all the editing functions and simply tells your program when the user has finished and pressed "Return". There are two advantages: firstly, you do not have to bother to code it; and secondly, (and perhaps a bit more importantly) the user has a constant environment for string gadgets (pressing Right AMIGA-Q will always result in an "Undo" regardless of the program being used).

Graphics

The time has come to delve a little deeper into Intuition's internals. The requirement is a means of representing graphics and text in an efficient manner in such a way that a variety of Intuition components (gadgets, menus, requesters etc) are all able to utilise them. The Border, Image and IntuiText structures. These are system data structures used to represent various types of data to Intuition and to provide a versatile means of coding some quite complicated gadget/menu/requester routines. You can also use them for simply rendering graphics or text in 2any3 Intuition window or screen, without using them as gadgets etc.

Firstly, we shall consider Borders. These structures are a convenient means of drawing lines. They do not necessarily have to border anything or link up to form rectangles and are presumably called Borders because it sounded more impressive than Lines! The Border structure in the include file intuition/intuition.h contains various coordinates, rendering information such as pens and drawing modes, a pointer to an array of coordinate pairs, a count of the points and possibly a pointer to a further Border structure. Most of the time a Border is drawn automatically when you open a requester up or specify a gadget to be drawn, as both requester & gadget data structures contain a pointer to a Border structure. Again the use of linked lists (i.e. where a given Border will point to the next to be drawn, saving you calling a DrawBorder() several times) minimises the effort on your part.

Another general characteristic of Intuition rendering structures is the use of several levels of offsets. This is so unbelievably, incredibly, clever as it means that one set of data (whether it be Image, Text, or Border) may suffice if you have several gadgets which look the same but are merely in different places. In the example program, the gadgets to reset the current draw colour all share the same Image data but have different locations on the screen. This allows you to maximise efficiency by avoiding having several sets of identical data.

Images are slightly more involved as you must know how the Amiga builds up

continued from page 85

its nice colourful display from a string of ones and zeros. A bit plane is a continuous section of memory which the hardware scans, and every bit set is "translated" into an "on" pixel on screen. Conversely, zero bits represent pixels which are turned off. That is fine for monochrome ZX81's and Macs, but the Amiga boasts a hitherto elusive quality called colour, lots of colours, up to 32 in fact from a choice of 4096. Coincidentally, there are 32 colour registers in the graphics chip, each of which may hold a number between zero and 4095, corresponding to the available colours. Now, the problem is how to get data from memory and use it to represent colour on screen. The hardware is told where each of five bit-planes is located in memory and for each screen pixel it magically "superimposes" the corresponding bit from each bit-plane and builds a five-bit number which, you guessed it, lies between zero and 31 and so points to the colour register.

The example above assumes a five bit-plane display. The standard Workbench screen is only two planes deep, allowing $\hat{2}2 = 4$ colours. Thus, to generate gadgets of a graphical nature, it is necessary to calculate the data for each of the two planes. Or is it? The Amiga operating system was written with efficiency in mind since the original machines only contained 256K of RAM. To this end, the variables PlanePick and PlaneOnOff are included in the Image structure. (They also crop up when using Blitter Objects as pseudo-sprites but that's another story). This system is rather alien at first but if you are persistent, you will soon appreciate the subtlety of it. The value in the Depth member of an Image structure tells Intuition how many planes of data to expect. The bits in PlanePick tell Intuition into which planes the data (pointed to by the ImageData field) is to be placed. This means that you can design Images with less planes of data than the screen they live in, saving you from entering (and hence the computer storing) vast strings of zeros for the blank planes. What if you wanted the "missing" planes set to one? This is where PlaneOnOff comes in: you simply set the variable to one or zero. Phew!

This is all very confusing so we shall consider an example in detail. The drawing program contains gadgets to change the draw mode from "free hand" to "line draw" and also several to alter the colour of the pen used in rendering your masterpiece. The Image data representing the shape for the latter is only two lines of hexadecimal and codes for a solid rectangle on screen. The first point to note is that four identical gadgets (distinguished on screen by their colour) can share the same array of data. Naturally, they must all have their own Image structure which allows us to play around with the eventual icon from this single set of data. Once the coordinates are set up and the pointer to the data initialised, we can have some fun with the Plane variables.

Colour zero is the background colour. I have set the PlanePick and PlaneOnOff to be zero. This has the desired effect of putting a blue box on a blue background (assuming the default Workbench colours), and hence results in nothing! Colour one is actually white; this colour being stored in register one. Thus we get Intuition to plot our shape at the coordinates shown (explained later) and the Image data is placed into the first plane (confusingly this is actually plane zero, in terms of the hardware) and ensure that the corresponding area in the other plane is set to zero.

Colour two is usually black so we code this using the same Image data by instead placing the data into plane one. Zeros are placed in plane zero. This means that any "on" bits in this structure will be plotted as black on screen.

Colour three is the orange at the default settings. So, the data needs to generate threes which, in binary, are 11's. Hopefully, by now you can see that placing the data in either plane and setting the other plane to all ones will cause the colour three to appear. Note that this is not the simplest means of generating solid boxes under Intuition as you do not have to use Image data at all. The Intuition reference manual explains the alternative on page 194.

The system I have used only works because the gadgets are solid colour. As an exercise, try altering the image data so that "holes" appear in the rectangles and see what colour they are! This should not affect the functioning of the program at all.

The other gadgets are more complicated in their design (but not much) The data coding for them is somewhat more involved as the icons are multi-coloured. However, the principles outlined above are applicable to these gadgets. It is quite an achievement to plot out Images on graph paper and calculate the hexadecimal values for the compiler, especially for gadgets with several planes of complex data. I have to admit that I cheated slightly as I "drew" the outlines using DeluxePaint, saved them out as brushes, and then used a public domain program called Brush2C to generate the hex. data (and also the Image structures as a bonus). I am sure the Amiga User Group can help you find this program) it is also useful when designing various sprites.

One last problem with images is that the data for them must be located in CHIP memory. This is the lower 512K in the memory map and is the maximum area accessed by the custom chips inside the Amiga. If you have no extra memory expansions, this will be no problem as long as you do not intend to give your programs away. The operating system usually tries to preserve CHIP ram when FAST memory is present so there is a very good chance that your data will be loaded into an area of memory inaccessible to the Blitter and Co. There are several ways around this.

Firstly you can use a program called **ATOM** on your object code (i.e. before using the linker, Blink) which will force all data to CHIP ram. Also **Fixhunk** is a public domain program which scans through code already linked and resets the data sections (hunks in Amiga-speak) to CHIP memory.

Finally, you can program your way around the problem by physically copying your data into CHIP memory, after gaining access to a section via a call to the Exec function AllocMem(). Remember to deallocate this memory before exiting otherwise it will be lost until Doomsday or someone pulls the plug, whichever is first. The exact method makes very little difference in the end but the last one is most elegent, if tiresome.

This is a convenient place to break, so next month I will continue and explain how to set up the Gadget structures in a program and also how to use the IDCMP to process the inputs from gadgets.

M.N.

```
/* This is the Gadget program which will no doubt do something gadgety. I don_t know
what, which is intrinsically worrying since I_m writing it. Such is life! By Mike
Nelson, April 1989. */

#include "exec/types.h"     /* Yawn */
#include "intuition/intuition.h"     /* Deja vu a squillion times */

#include "ram:image1.h"     /* This is my own #include file */

#define TOPLEFTX 0     /* OK. I_ve sussed out what the program does now */
#define TOPLEFTY 0     /* (after several hours of keyboard bashing). */
#define WINBIGX 640     /* It_s a sort of embryonic DPaint which allows */
#define WINBIGY 200     /* you to draw freehand in the window & also has */
#define WINSMALLX 210     /* a primitive line draw & colour selection bit. */
```

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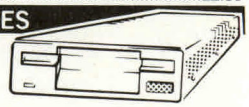
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```
#define WINSMALLY 25     /* It won_t put Electronic Arts out of business, */
#define BOTLEFTX 419     /* but does serve to illustrate some aspects of */
#define BOTLEFTY 184     /* gadget and mouse programming. It also shows */
#define FREEDRAW 4     /* how unbelievably bad I am at drawing. */
#define FREELINE 5     /* By the way these are My Meaningful Macros. */
#define STRETCH 6     /* They are mainly GadgetID_s & window coordinates */
#define GADGFLAGON GADGHCOMP
   GRELBOTTOM
   GADGIMAGE
   SELECTED
#define GADGFLAGOFF GADGHCOMP
   GRELBOTTOM
   GADGIMAGE
#define IDCMPFLAGS CLOSEWINDOW
   GADGETUP
   MOUSEBUTTONS
#define DRAWIT 1     /* This is a draw mode toggle to halt drawing when */
#define STOPIT 0     /* the pointer is moved out of the window */
#define COLOUR00     /* These are the GadgetIDs for the 4 colour select */
#define COLOUR11     /* Gadgets in the bottom border of the window. */
#define COLOUR22     /* Again, it_s better to use macros than magic */
#define COLOUR33     /* numbers in the switch statements. */

struct IntuitionBase *IntuitionBase;     /* Access to Intuition routines */
struct Window *Window;     /* Only a POINTER Intuition does rest*/
struct GfxBase *GfxBase;     /* Need this for Draw() routines */

   /* Now do Gadget structures  a linked list, Images are stored in image1.h which is
read in at the top of the program from RAM: */

struct Gadget Stretch = {
   NULL,     /* This is the head of the list so end with NULL */
    80,0,29,10,     /* Left, Up, width & height */
   GADGHCOMP
   GADGIMAGE
   GRELRIGHT,     /* Flags */
   RELVERIFY
   TOPBORDER,     /* This is Activation */
   BOOLGADGET,     /* Type of gadget */
   (APTR) &squish5,     /* Pointer to Image structure */
   NULL,     /* No alternative Image */
   NULL,     /* No text after selection */
   NULL,     /* Mutual exclude  ignored */
   NULL,     /* SpecialInfo  no need! */
   STRETCH,     /* This allows me to distinguish the gadgets */
   NULL     /* Getting bored? */
};

struct Gadget ColZero  {     /* Not much difference between each structure */
   NULL,
   65,  10,29,10,
   GADGHCOMP
   GRELBOTTOM
   GADGIMAGE,
   GADGIMMEDIATE
   RELVERIFY
   BOTTOMBORDER,
   BOOLGADGET, (APTR) &colour0, NULL, NULL, NULL, NULL, COLOUR0, NULL};

struct Gadget ColOne  {
   &ColZero,
   96,  10,29,10,
   GADGHCOMP
   GRELBOTTOM
   GADGIMAGE,
   GADGIMMEDIATE
   RELVERIFY
   BOTTOMBORDER,
   BOOLGADGET, (APTR) &colour1, NULL, NULL, NULL, NULL, COLOUR1, NULL};

struct Gadget ColTwo = {
   &ColOne,
   127, 10,29,10,
   GADGHCOMP
   GRELBOTTOM
   GADGIMAGE,
   GADGIMMEDIATE
   RELVERIFY
   BOTTOMBORDER,
   BOOLGADGET, (APTR) &colour2, NULL, NULL, NULL, NULL, COLOUR2, NULL};
```

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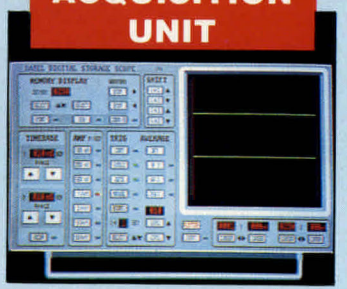
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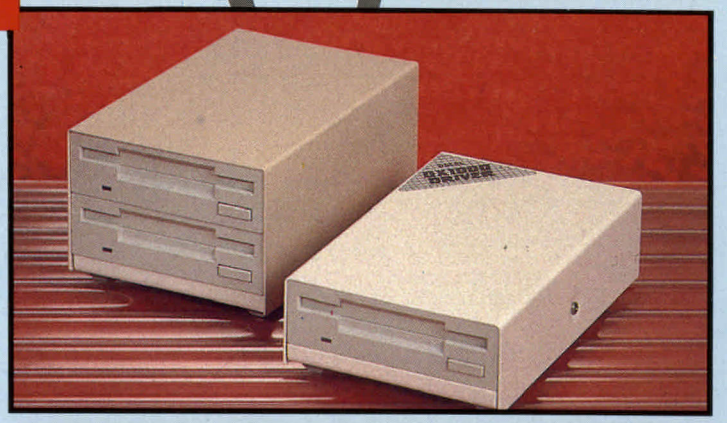
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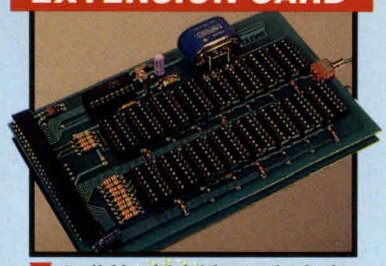
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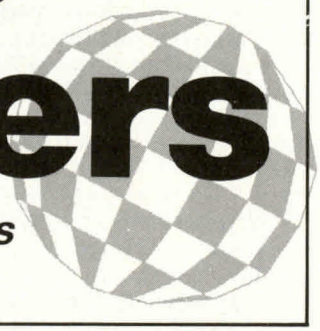
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Amiga Answers



Yuri Large tracks down the tips that keep you on top!

Dear AUI,

I am just about to upgrade from an 8 bit micro to an Amiga 500, and I would like your advice on what language I should use. On my old computer I used to do a lot of music and graphics programming using basic, but I found this didn't fully exploit the machine's capability, and naturally was rather slow.

What can you advise me on languages for the Amiga which fully exploit the machine's capabilities, but at the same time being easy to learn and understand.

Could you also answer some questions for me concerning the Amiga's internal electronics?

What is the "blitter chip" and what exactly does it do? How do "co-processors" work and are they advantageous to the overall performance of the machine?

Yours thankfully,

Alan Clark, Stevenage, Herts.

Dear Alan,

Programming the Amiga can be a rewarding yet frustrating pastime. The intricacies of the Amiga's multi-tasking operating system can be both perplexing and intriguing. So the choice of the language with which you intend to program becomes more important than ever, especially when you consider the costs involved in most cases. There are many languages now available for the Amiga - C, Pascal, Modula-2, Assembly, Fortran, Forth, Lisp and BASIC - to name a few!

Of these multifarious languages there are four popular contenders to the Amiga programming crown. Firstly there is BASIC in many forms, which is a far different beast to the language most of us were brought up on. Gone are the line numbers and all the baffling pieces of code which jumped from place to place making them totally unreadable. Thankfully, all the different verions of BASIC for the Amiga are a window into the world of object orientated programming structure (OOPS). This makes the programs easier to piece together and should also help to stop the occurrence of bugs.

Amiga BASIC is obviously the standard for BASIC on the Amiga, as it comes free with all machines. It was originally written by MicroSoft and as such it is still a very powerful and easy to use interpreter. Although Amiga BASIC is a great step forward from the 8 bit BASIC's, it still lacks a little speed when compared to all the compiled languages for the Amiga and the editor provided is to say the least clumsy. However, for any beginner looking for a place to start before coming to a decision about which language to really chose, you could do a lot worse!

On the other hand, for those that still want the ease of use given by BASIC but need more speed, there are plenty of compiled BASIC's around. These BASIC's, such as HiSoft BASIC and AC BASIC, give at least a threefold increase in speed with almost all programs. This makes them a very viable alternative to some of the more expensive compiled languages.

The pick of the compiled BASIC crop on the Amiga has to be HiSoft BASIC. It has the advantage that it will compile most Amiga BASIC programs as they stand, and thus allows the use of the interpreter for program development; program routines can be tested before moving on to the more laborious process of edit, compile, run, edit, compile... It is also very fast (in BASIC terms) and at around 60 pounds offers excellent value for money.

The other three contenders are C, Assembly and Modula-2. All of these will require a good year or so to come to grips with and thus should only be considered by those in search of a challenge.

C is the popular choice at present, as it gives the low-level system control of Assembly Language, while being very readable and modular. The two compilers for the Amiga are produced by Manx and Lattice, more about which later.

Assembly Language is lightning fast, but on the other hand program development isn't, if you see what I mean. For the beginner Assembly Language is a scary prospect. This one is definitely only for the brave! The HiSoft DevPac version 2 offers the best starting point for those who fly in the face of caution.

Lastly, Modula-2 is a highly structured programming language, which offers many of the concepts that computer scientists of today cling to. The major problem for the beginner is that there is little documentation relating to the use of this language with the Amiga. The two compilers produced for the Amiga are the M2S compiler and Avant-Garde's Benchmark Modula-2.

To sum up briefly, all the languages available for the Amiga can be used to access its innermost power. However, for the beginner I would say there is no better place to start than a compiled BASIC.

The Blitter is one component of Jay Miner's custom Agnes chip. Blitter is short for bit block transferrer, which is exactly what it does. In layman's terms it is used for the fastest possible transfer of data around the Amiga's memory. Indeed, it is this that allows the Amiga's graphics to continually astound us.

Co-processors are often used to replace the Amiga's 68000 with a faster16 or 32 bit processor or to add super charged math processing abilities. All the co-processors used are also in Motorola's 68xxx series. These basically increase performance by running the tasks ofthe CPU at a far faster rate than the 7.16 MHz. 68000, which the standard Amiga is equipped with, is capable of.

Dear AUI,

I have been collecting your magazine since March 1988 (two months before I actually bought my Amiga 500). I would like to ask you some questions. It would be extremely helpful and I would be very grateful if you'd answer them.

(1) In the near future I will be buying an expansion (512k internal) to make my Amiga a 1Mb machine. Later on in life, if I wished to expand again (externally, of course) to make my Amiga a 2Mb machine I would have to buy an external 1Mb expansion. I know the Amiga 500 is expandable to 9Mb, but everywhere I look I see 1.5Mb or 2Mb expansions etc., but I've never seen a 1Mb expansion. Yes, the 4 million dollar question, is there really a 1Mb expansion out there? If there is one that might have slipped my eye, please could you tell me about it, so I can always keep it in the back of my mind! And if there are lots of them, please could you recommend the best for the best price?

cont. on next page

(2) In one of the AUI's (I can't remember which), you said that the Cumana CAX-354 or something like that (I'm never good with numbers, you know!) was probably the best 2nd external drive, because of its on-off switch etc. What I would like to know is whether the Cumana 2nd drive has another disk drive slot behind it or somewhere, so that I could "daisy chain" another drive onto it?

I also have a thing to tell all you unsuccessful Magnetic Scrolls adventurers out there. If you can't solve certain puzzles in your gamethen write to: MAGNETIC SCROLLS, 1 CHAPEL COURT, LONDON, SE1 1HH, andthey will be happy to help you out with your problems. Wait, don't go rushing off to your pens and papers, include a SAE with your letter, and you'll probably have to wait over 2-3 weeks for the reply to come!

Yours askingly and informingly,
Anjum Khan, Ilford, Essex.

Dear Anjum,

(1) I cannot think of an external memory expansion for the A500 which will give you exactly 1 Mb. of extra RAM. However, I can think of two good ones that are available in 1 Mb. configurations. One is the excellent StarBoard2/500, which gives a maximum of 2 Mb. expansion. This will also allow you to add a SCSI interface card or a 68881 maths co-processor. The StarBoard is available from Oasis Services on 01-859 4936. The other one I can think of is the MiniMegs from M.A.S.T., which is again capable of a maximum of 2 Mb. RAM expansion. This expansion does not have the additional features of the StarBoard, but it is available for about 50 pounds less. M.A.S.T. are on 077082-234.

Although these two expansions are not just 1 Mb. expansion they both offer the option of further memory expansion. Don't forget that within a couple of years 2 Mb.'s may not be considered as very much...

(2) The CAX 354 external drive from Cumana does not have a daisy chain drive port. This is for the very important reason that the A500's power supply will not cope with more than one unpowered external drive. However, all drives that come with a power supply have a pass through, so if you are considering a third drive at any point you should get one with a PSU. This will of course allow you to daisy chain on your unpowered external drive.

Dear AUI,

We have used the Commodore 64 since 1984 and we were very proud of it. For serious computing, however, we used an IBM PC compatible. After reading some of your AUI magazines and others, we are falling in love with the Commodore Amiga. It has amazing graphics, sounds, and it can emulate IBM PC as well as the C-64.

It's a shame that Amiga doesn't have any dealers in Indonesia, so we're facing many difficulties in gathering information. If you don't mind we want to ask several questions:

(1) With a stock Amiga 500 equipped with the Transformer (IBM PCemulator), how much compatibility does it have? Can we use a Seagate hard disk (originally for IBM PC) in its PC emulator mode?

(2) Does it have a PAL video output (we want to use it for videorecording)?

(3) Is it possible to buy an Amiga through mail order? If it is, can you give an address for us to contact?

Thanks for your attention.

Yours sincerely,
Susi Lowati, Indonesia.

Dear Susi,

(1) The A500 with the Transformer only offers the barest compatibility with IBM software. It allows the use of text only applications at about a quarter of the speed of a standard XT compatible, which is slow enough itself. I am afraid I have no hesitation in suggesting that for someone such as yourself, who already has some experience of PC's, the Transformer is of little use.

(2) The A500 comes with a mono composite video port as standard, which is PAL on European specification A500's. In order to produce a colour composite signal you will need to invest in the A520 TV modulator which gives colour RF and composite video signals. The A520 TV modulator comes free with most A500's, but if not can be supplied separately for about 20 pounds or so.

(3) Most of the companies who advertise in AUI will sell the A500 mailorder.

Dear AUI,

May I congratulate you on your excellent coverage of music software and hardware for the Amiga in the June issue of your magazine.

I am thinking of using Copyist Professional with an A500, including an external 3.5" drive and A501 memory expansion, to transcribe music played on an analogue synth (not MIDI compatible) into musical notation. Is there any way to do this and still have the ability to edit the sound obtained (by using Audiomaster II for example), or am I setting my sights too high? If not, how long may a piece of music last? I am also a little confused about the quality of musical reproduction on the Amiga; is it really as good as original analogue sound?

Yours faithfully,
Tim Moore, Kettering.

Dear Tim,

Unless you use a MIDI compatible keyboard to connect to your Amiga via a MIDI interface, you will not be able to transcribe your performance using the Amiga. The essential point is that MIDI is used to translate your performance into data that can then be manipulated by software such as the Copyist Professional. However, if you do use a MIDI compatible keyboard you will then be able to transcribe music, which can then be have individual voices adjusted by the use of different MIDI parameters. This process will require the use of a sequencer of some sort, such as Dr. T's KCS.

The Amiga's sound quality is not quite that of an analogue synthesiser. In fact it is a digital synthesiser, which will play at a maximum rate of 28KHz., or thereabouts. This compares with a CD player, which has a playback rate of around 44KHz. So, although the Amiga's sound quality is good it will not rival most professional equipment.

Dear AUI,

Could you give me some facts about the A590 memory expansion/hard drive unit. I own a 1Mb Amiga 500, with external drive, and I am very interested in expanding it further. This looks like exactly the right thing.

Yours faithfully,
Andrew Davidson, Bournemouth, Dorset.

Dear Andrew,

The Commodore A590 Hard Drive Plus is probably the answer to most A500 owner's dreams. It is a 20 Mb. hard disk with sockets to expand the RAM of the A500 by a further 2 Mb. The 20 Mb. hard disk autoboots from 1.3 and runs off a cut down version of the Small Computer System Interface (SCSI). A full specification external SCSI port is also included for the addition of further hard disks. The RAM needed for the A590 is low power consumption 1 MBit CMOS chips. Four are needed per half Mb. of extra memory required. The A590 can be upgraded to give half, one or two Mb. of extra RAM. The price for the RAM is roughly 80 pounds per half Mb. Another bonus is the excellent, easy to use installation and testing software.

All in all the A590 is an open ended upgrade for the ambitious A500 owner, and at 400 pounds it offers excellent value for money. I can thoroughly recommend it as I am using one myself right now!

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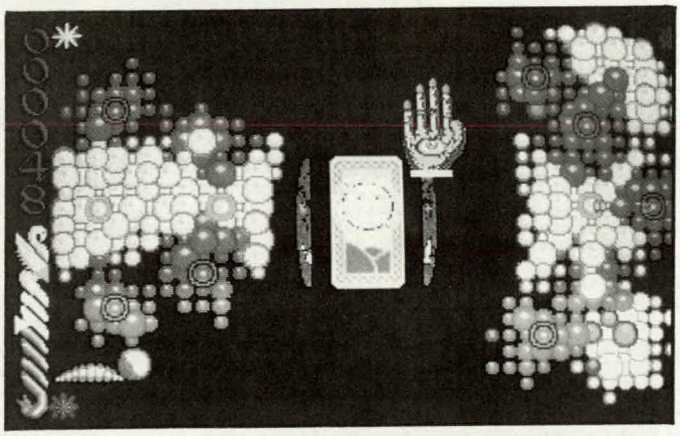
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continued from page 84

Short Reports



is a long job, and must be carried out star by star. Luckily, there are good portals among the bad ones. Good and bad growths emerge from the portals. The idea is to cultivate the good growths and get them to overrun the evil. You keep the bad growths at bay by shooting them, while your good multiplies. Spores can be picked up and planted to start off new good growths.

Guardians provide more target practice, but the game is lacking in excitement. Zapping the growths and guardians on static screens gets monotonous too quickly. The black magic theme may string out its life for devil worshippers, but I won't be coming back to it in a hurry.

Overall: 51%

Tom and Jerry

Magic Bytes

They wasted the Pink Panther licence, but Magic Bytes have given themselves a second chance with the official Tom and Jerry computer game.

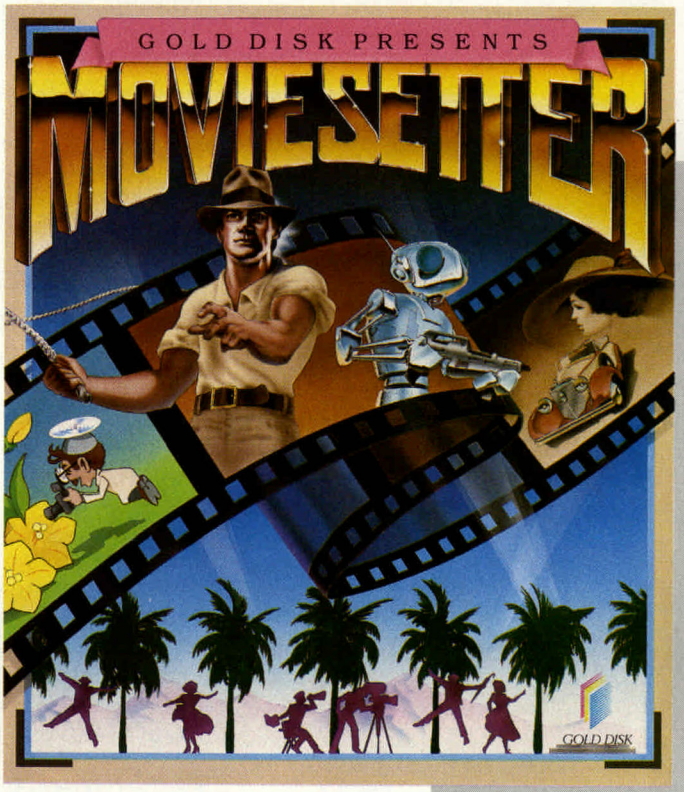
Jerry's luck is in. Someone has placed a load of cheese wedges all over the house. The trouble is that these are in the most awkward places, on top of shelves and other hard to reach corners. As Jerry, your goal is simply to find and eat all the cheese in the house. Tom is on the prowl, pouncing at any opportunity. This amounts to a slow, dull platform game. A small sub–game gives a little light relief, as you run down the interconnecting 3D passageways. Mediocre sound and graphics fail to improve matters. The weak game design is ever–obvious.

Overall: 25% *T.H.*

U.K. GAMES CHART

Game	Company	Last Month	Price
1. Forgotten Worlds	*U.S. Gold*	(2)	£19.95
2. Lords of the Rising Sun	*Cinemaware*	(1)	£29.99
3. Powerdrome	*Electronic Arts*	(-)	£24.99
4. Silkworm	*Virgin*	(8)	£19.99
5. Licence to Kill	*Domark*	(-)	£19.99
6. Federation of Free Traders	*Gremlin*	(-)	£24.99
7. Kick Off	*Anco*	(4)	£19.99
8. Blood Money	*Psygnosis*	(3)	£24.95
9. Microprose Soccer	*Microprose*	(8)	£24.95
10. Populous	*Electronic Arts*	(5)	£24.95

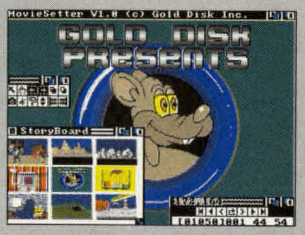
Saturday Matinee.



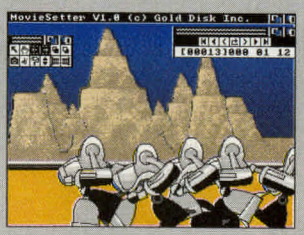
MovieSetter, the latest software blockbuster from Gold Disk, is the Amiga owner's ticket to pro-quality video animation and brilliant stereo soundtracks. And because of a software design breakthrough, it'll let you create dazzling overscan video movies that are minutes - not seconds - in length, without requiring truckloads of memory (512K minimum, 1MB recommended).

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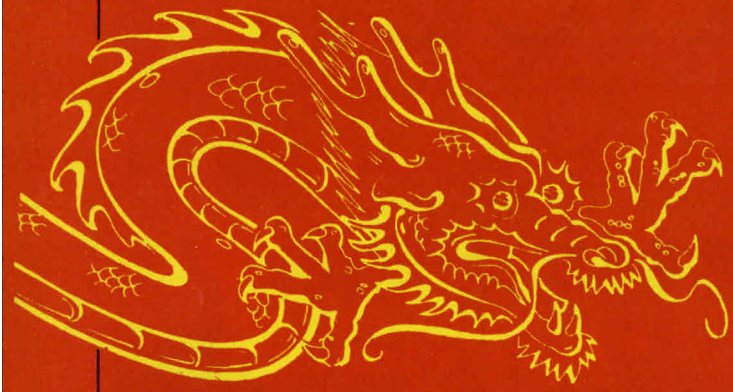
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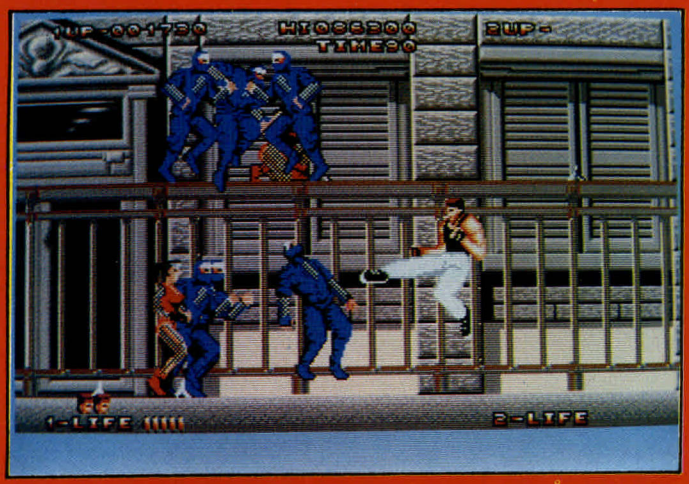
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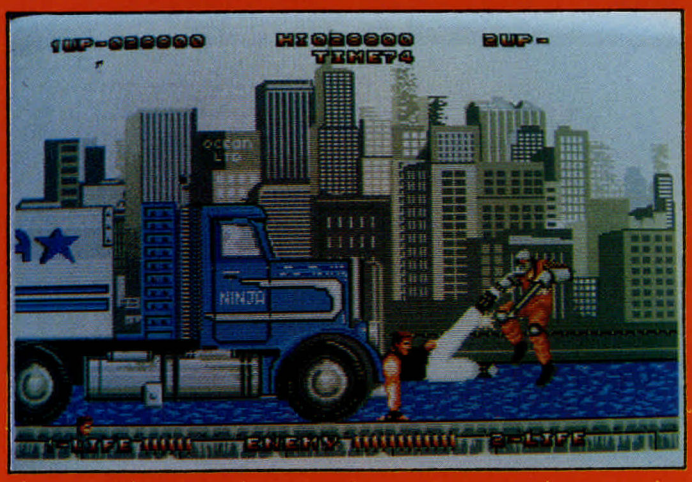
This ad was produced using Gold Disk's Professional Page.

DRAGO

Ocean









Ocean France are fast emerging as one of the leading development houses in the 16-bit arcade field. Although, as Ocean France, the team is new to the scene, they are already showing off a unique, unrivalled style of graphics in their forthcoming games, which I can honestly say are the best I have yet seen on the Amiga! For their current release, the coin-op tie-in restricts their artists to the high standards of Data East's Dragon Ninja visuals.

"Karate's answer to R-Type's beam weapon is the super-punch."

Set in the recent past, the game opens with the shock announcement that "President Ronnie" has been kidnapped by the Dragon Ninja. A couple of bad dudes step forward for the job of freeing the president, experts in the martial arts who plan to beat the ninja at their own game.

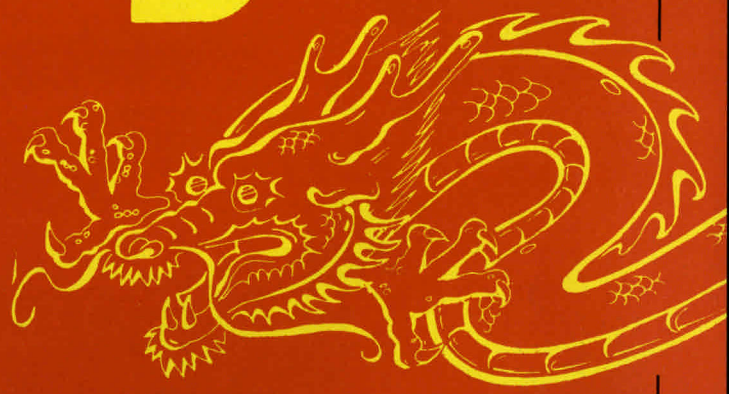
The road to the ninja's lair is long; eight horizontally scrolling levels long in fact. In two player mode, both bad dudes take on the enemy simulataneously, identical but for a strange choice of colour scheme for the second player. Both have a full complement of moves, including a few rather more

"Technically, Dragon Ninja is way ahead of its main rival Vigilante, and plays a lot better for it."

spectacular attacks among the usual kicks and punches. Karate's answer to R-Type's beam weapon is the super-punch. Hold down fire for a few seconds, and an inner-strength is called upon as the player's torso flames before letting rip. Weapons dropped by enemies can be picked up, adding a couple more methods of defence. Level one climaxes with a bald fire-breather, whose ample rolls of blubber absorb a good deal of punishment from fists and feet.

Level two introduces the game's first original idea. Here the rumble continues atop an artic HGV. Jumping the gap between the two trailers can be

NINJA



tricky, and falling from a speeding juggernaut does nothing for a man's health. Through forests and sewers, across trains, the gameplay remains constant but for the guardians. Level four's armoured giant, like most of the earlier guardians, is not too much trouble if you keep him at bay, not giving an inch. Allow him free roam of the screen and it's curtains for all but the most agile of bad dudes.

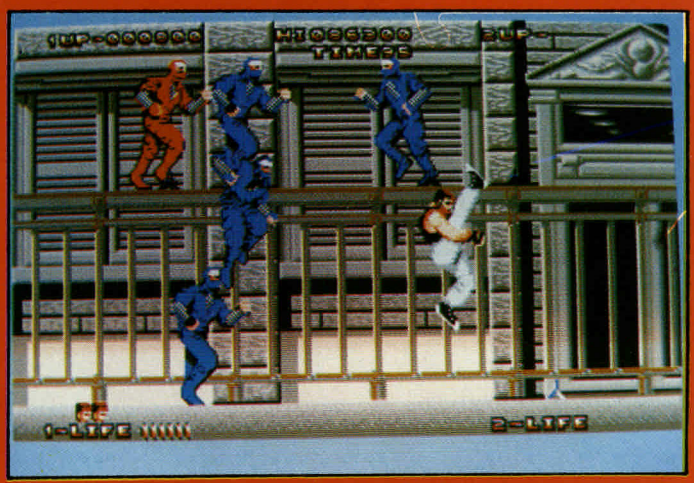
Technically, Dragon Ninja is way ahead of its main rival Vigilante, and plays a lot better for it. Like Operation Wolf, its graphics (when static) are virtually indistinguishable from the arcade machine. At times, the screen can be full of ninjas, scampering along like a West End chorus line. It works both ways though, and you can often find yourself with no-one to bruise, as usually is the case at the end of the second level. Considering the size and often large amount of sprites on the screen, they move fairly speedily. Scrolling is not what I would call smooth, but is a lot better than the majority of coin-op conversions. All the same, no-one has yet matched the speed and fluidity of Soren Gronbench's Sword of Sodan. Maybe in time...

Sound could have been put to better use. The optional music sounds like a cross between Operation Wolf and Miami Vice, with most of the voices borrowed from the former. The effects are halfway there, with constant grunts from the fighters, but where are all the sounds of knuckles connecting with noses and nunchukas breaking ribs?

The impressive graphics and generous supply of levels will keep you playing through to the end, but it's unlikely you will return once you've completed it. The accuracy of the conversion will go down well with the orginal's fans. Another classy product from Ocean, but that £24.95 pricing could do with a review.

T.H.

Graphics: 8
Sound: 6
Playability: 8
Value: 8
Price: £24.95



The French Connection...

With Operation Wolf, Voyager and Dragon Ninja to their name, Ocean France are now concentrating more on original ideas than arcade conversions. Ivanhoe, their second original creation, attains heights of graphical excellence never before reached in a home computer game. Simply granting them the status "arcade-quality" does them no justice. Ivanhoe is similar to Sega's new Golden Axe in gameplay, but I'll stick my neck out here and say the sprites are even better, thanks to a brilliant cartoon style, and on top of that, reports are coming in of perfect scrolling. Adidas Beach Volley is a volleyball simulation which takes you on a tour of the World's beaches and courts, with graphics equalling Ivanhoe. Another football game is on the way, Adidas Golden Shoe, which employs the fashionable overhead view with graphics very similar to the coin-op Fighting Soccer.



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DeluxeHelp

Manual dexterity comes hard to some computer users, but help is at hand, says Peter Lee, in the form of tutorial disks for two major art packages

'If in doubt, read the manual' is a jokey old saying which has been resurrected for today's impatient computer enthusiast. Generally, people load in new software immediately and only bother to work out how to use it much later...

This haphazard method does have its good points. As a frequent culprit myself, I find learning as the need arises, as opposed to ploughing through minutely detailed manuals, is quite stimulating, if less than efficient.

However, the time does eventually come when some kind of help is needed; but sometimes even a software manual can leave you in the dark. It is, therefore, refreshing to see enterprising Florida company RGB Video Creations bringing out the kind of tutorial disks which make learning a pleasure.

Obsolete?

The two separate items under scrutiny are for Photon Paint and DeluxePaintII. Initially I could see problems of obsolescence here; after all, both graphics programs have been recently upgraded and feature several enhancements not covered by the help disks.

However, there must be many thousands of Amiga Users who still have and use the older versions, and in any event many functions covered are identical in both upgraded programs.

To run the utility you need to boot the computer with the help disk, and have the original art program available for loading. There is no way to use the tutorials unless the help disk can access either DPaintII or Photon Paint because it works interactively with them.

Each of RGB's disks opens to a workbench-style pull-down menu screen where any of the dozens of lessons can be invoked, from the complexities of Photon Paint's luminescence feature on one disk, to DPaint perspective option on the other.

As you need to know more about a subject, therefore, or need to advance your knowledge of the program, you can select the lesson to suit your needs. Once chosen, a lesson will play through in a clever and absorbing way. You can chose to stay in the art program to practice what you have just seen, or move onto another lesson.

The tutorial screen changes to your particular art package, then as if some phantom hand is guiding the pointer, menus will open up, selections will be made and artwork will be created as a computer voice explains what is happening.

The lessons are slow-paced, sometimes agonisingly so, but they bring home in practical terms how to use the powerful art packages supported. Documentation is meagre, and the DPaint help disk has a poor quality menu crib-sheet included, seemingly as an after-thought.

Conclusion

An impressive range of tutorials make learning a much more enjoyable process, though as both art packages have excellent manuals there does not appear to be a crying need for their services. But the help disks are a novel and interesting idea, and do their job admirably.

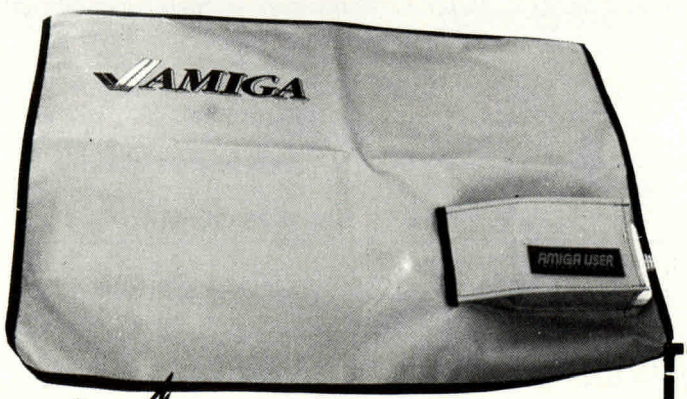
*The software will work on the whole Amiga family of computers and needs 2 drives: Photon Paint Help requires a minimum 1meg of RAM, while DPaintII Help will run on 512K.

P.L.

Prices: DeluxeHelp for DeluxePaint II, $34.95; DeluxeHelp for PhotonPaint, $34.95.

Contact: RGB Video Creations, 3944 Florida Blvd., Suite 102, Palm Beach Gardens, FL 33410 (USA). Tel:(407) 622-0138.

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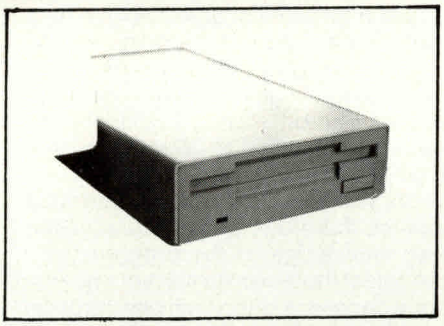
Silence is Golden

Mark Smiddy tours around Diamond Computing's 1Mb disk drive

Here is a question: "What is the difference between the three leading makes of third-party external Amiga disk drive?" No prizes for guessing the answer which is: the drive mechanism - and precious little else. This then begs the question therefore, why on earth are **AUI** reviewing this one? The answer is this: because we thought it was about time we covered at least one of the leaders, and give you all some idea what you are laying out your hard-earned cash.

Like most of the newer external drives, Diamond's is based on a high quality half-height mechanism, and therefore, can be fitted into almost any convenient desk space. It will even sit on top of an Amiga 500 if you so desire.

The mechanism used is the highly reliable and extremely quiet NEC unit. Protecting this, and adding some aesthetic appeal is a standard anodised steel casing, the colour of which matches the Amiga much better than the others available. Support (and desk protection) is afforded by four self-adhesive rubber feet. Located at the back of the casing, is a pass- through, enable/disable switch and a generous cable.



As you may have already gathered, there is really nothing "special" about this drive whatsoever. A pass-through and disable switch are now standard fittings to almost all external Amiga drives, in fact you should not buy one without them.

A few things do make the unit stand out though: in its favour, when compared with say, Commodore's A1010 or the lookalike AF880, Diamond's drive is very slim and feels very sturdy. Also, because of the high quality mechanism it is almost silent in operation.

The story does not end there though. For a start, no instructions whatsoever where supplied with the review model. We did not need them but what about the poor beginner? Not everybody knows what a drive disable switch is for! Worse still, the switch used is a miniature toggle. This has several problems: first, there are no markings on the case to suggest which way is on; second, it is all to easy to knock the switch into the wrong position.

Finally, and possibly worst of all, there is no warning about not using more than two drives with an Amiga 500. Be warned: the A500's power supply cannot supply enough current to drive more than two drives at once! The solution is either buy a drive with a built-in PSU or get a more powerful PSU for the Amiga; Bytes and Pieces can supply one for around £60 which includes its own cooling fan. It can drive up to four drives and a lot more besides.

Diamond Computing's little drive is nothing special - but it works. It offers all the features you should expect from an Amiga drive but nothing else. At best it is cheap, almost silent in use and should enjoy a very long life.

M.S.

Price: £67.85. Contact: Diamond Computers, 6 Gwen Rhian Court, Court Road, Southampton, Hants. Tel: 0703 338933

Amiga-Tips

Bill Harvey helps you to test the WorkBench or CLI

A C program can make use of the argc and argv[] declarations to collect, and therefore use, any partameters which were present on the CLI command line when the program started. In these types of cases the 'argc' variable will be at least 1 – to start the program you must at least type its name and that provides the first parameter!

If the same program is started by a user clicking on an appropriately named icon the situation is different – there is no command line, and a program which looks at the 'argc' variable will find that is zero – this makes it dead easy to check whether your program started from the WorkBench, or from a CLI.

Why does it make a difference? Perhaps the most important reason is that WorkBench programs will not necessarily have valid output handles and so using C routines such as print() can cause the operating system to crash. To avoid such problems, all a program has to do is make a preliminary test on the 'argc' variable and then take any actions which might be appropriate to the program concerned. Here's a typical example –

```
BOOL cli_start;
main( int argc, char *argv[] )
{
if (argc==0)
      {
      cli_start=FALSE; /* set a flag to indicate findings */
      OpenSinkWindow(); /* take any precautions required */
      }
/* remainder of the program continues as usual */
```

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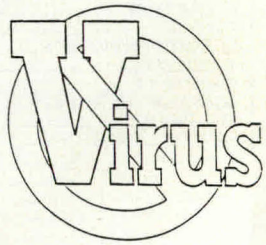
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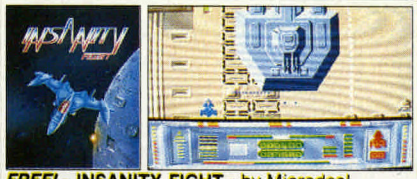
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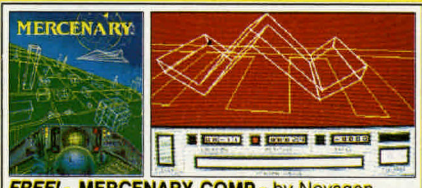
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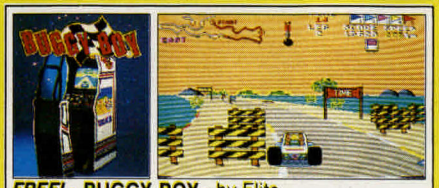
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DigiWorks 3D

Peter Lee asks - 'Is Digiworks 3D the shape of things to come?'

It seems that as each month goes by, a new product emerges which pushes back the edge of what is possible on the Amiga. The current best in a given field is frequently bettered, and companies release innovative software that creates its own standards and slots straight into a waiting niche.



DigiWorks 3D, from software pioneers Access Technologies Inc. is

"Imagine trying to design a 3D object such as the Rolls Royce symbol, and you get an idea of the amount of time you can save."

such a program. It is a sophisticated tool for creating the kind of 3D objects which - if they were at all possible in the first place - would have taken many days of frustrating work.

In itself the program cannot create a graphic image, but provides the shape data for three dimensional objects to be rendered in two of the most popular solid modelling formats, Turbo Silver (from Impulse Inc), and Sculpt-Animate 3D (Byte by Byte Corp.). But unlike a standard 3D editor, DigiWorks features a startling and novel facility - the ability to use an edge-detection routine to create an object from an art screen - and this is especially useful when you import a digitised frame. Using this technique even the most complex logo, company letterhead or even an object can be digitised, and then used to create an object with depth. Objects can be incorporated into one of the 3D programs supported. Imagine trying to design a 3D object such as the Rolls Royce symbol, and you get an idea of the amount of time you can save.

Another big bonus is the ability to create 3D fonts from scanned characters. Digitise a font style sheet or even just a magazine headline, then sit back and watch it being translated into usable 3D objects.

Evolution of the Revolution

Before getting down to the program's use, a few words about its evolution: Access technologies may be familiar to users for their Fancy 3D Fonts program, and in fact an early version of DigiWorks was used by the company to create their fonts, which could be loaded into third-party 3D rendering packages. There was enough feedback from interested users about the way the fonts were created in the first place that the team decided to develop their system as a professional product - and now it is on the market.

"Once on screen an automatic edge-detection algorithm gets to work, placing critical vertices along outlines."

The program is supplied on one unprotected disk and runs on machines with a minimum 512K of memory. The version under test was in the NTSC format, but fortunately, due to the type of specialised work involved, this did not pose too great of a problem. The program is controlled by pull-down menus, and is quite straightforward to master - a complete contrast to some 3D programs, which eat into your day in a very frustrating way.

Getting Started

The first thing you need to do is to load in an image to process. This can be IFF, Snapshot or RGB format. Once on screen an automatic edge-detection algorithm gets to work, placing critical vertices along outlines. If there is only a small portion of the screen image in which you are interested, perhaps one letter from a word, you simply drag an Area cursor box around the selected object to choose it, and the remainder of the image's vertices are discarded.

Clearly, with the best algorithm in the world, some vertices and angles are not going to be entirely accurate; digitised pictures are full of scattered pixels which can be a little confusing. However, DigiWorks has its own editor with which you can customise your newly defined object. Points can be added, removed or moved until the shape is exact. All the while your original image remaining on screen throughout, and serves as a good guideline. The work cursor changes shape depending on

which operation you choose. And although pixel-perfect positioning is a chore, consumes nowhere near as as time consuming as it would have been to create the object from scratch. In addition, the lines used to trace the shape outline are colour coded to help in correct positioning, and any mistakes can quickly be remedied by either moving or deleting items.

Saving Your Work

Once created, your new object can be saved in a number of ways. DigiWorks can save it in its own format as a Snapshot for re-use later; frequent use of this feature will safeguard against losing all your work in the event of a catastrophe.

But more usually you would want to save it as a 3D object for use by a rendering program. Firstly you would ask the program to fill the inside of your traced object with polygons (more accurately, triangles) to fit the requirements of the 3D modelling programs. Selecting Extrude will bring up a requestor requiring information about your new object. Here you can specify side and face colour and texture as well as the depth of extrusion to be undertaken when you render the object with your chosen software. Textures available correspond to the Sculpt-Animate format: dull; shiny; mirror; luminous; glass and, metallic. Size is also user-definable at this stage.

As far as complex images are concerned, with curves for instance, a degree more editing is needed. The tools are perfectly adequate for the job. The Draw utility is a must here, enabling you to construct complex shapes on screen, that are very similar to DeluxePaint's rubber-banded line tool. If you place your last point on the starting point, the shape will be a solid. If you finish your drawing near to the start

"Another nice feature is that if you totally wreck an object design, the program will retrace the image again for you, returning to square one."

position, the shape can be closed by the program - the subtle difference of this manoeuvre is that you will often need a see-through hole in some objects, and a solid shape within others.

Another nice feature is that if you totally wreck an object design, the program will retrace the image again for you, returning to square one.

Some guidelines on suitable sources are welcome additions in the manual. My experiments with straightforward 16 colour digitised images were more or less disastrous. The poor program tries its hardest to find an edge around every clump of pixels, and quickly turns out a half-complete image looking like a rat's nest.

But following the programmers' advice by using two colours for digitising, accurate edge detectionis possible with only a few minor cosmetic edits needed. This is particularly true for logos or line art.

"Digiworks 3D offers a major time-saving advance in the world of 3D modelling on the Amiga."

The program does have its own threshold setting with which you can help minimise bad lines by cutting down on the number of vertices created. This may mean more editing work, but in the long run I found it is better to add than to delete.

If you intend turning your favourite Amiga paint font into a 3D solid, then it is a simple matter to write your text in white on black in your art package, load in the saved screen and let DigiWorks define the shapes. Also, multi-coloured images are accepted, but you may need to alter a niggling Planes option in the program; otherwise, some of the colour will not be displayed, and even then, not in their true hues.

As well as the automated tracing featured in the program, keen users may well like to try their hand at manual creation of objects. This is a simple matter, thanks to the rubber-banded line function and a co-ordinates read-out of the cursor position which can either be set to absolute, or relative values (useful for measuring distances between points). Also, the manual is a 50-page paperback with a good mixture of tutorial and reference.



Conclusion

DigiWorks 3D offers a major time-saving advance in the world of solid modelling on the Amiga. Being able to turn standard graphic fonts into ones with depth and texture is a major attraction, but the ability also to turn a company logo or letterhead into a 3D object relatively easily outweighs even that. The edge detection employed by the program can be a bit slipshod sometimes if the original image is not well defined, but the in-built vertices editor can get you out of any problems.

I would have very much welcomed a magnify option for close-up work - after all, the points can sometimes be close together. A wire-frame rendition of the completed solid object is also an option I would have expected, because there is no immediate feedback from your new creation until it is actually being manipulated in one of the 3D programs supported. Access do not provide a list of programs which support the DigiWorks data other than the two mentioned, so a degree of caution is advised if you have other types of rendering software which may claim some form of compatibility. The lack of a PAL display is also on the minus side. That said, there will be many Amiga artists freed from the time constraints of creating 3D objects thanks to a clever and much needed utility.

NOTE - The program was tested exclusively on Sculpt-Animate 3D with excellent results, and there seems no reason to doubt similar performance using Turbo Silver.

P.L.

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SUBROUTINES WHICH DO NOTHING !

Susan Maxwell shows you how to get something for nothing!

I have two routines in my subroutine library which I know for a fact will NEVER be bettered for compactness, speed and elegance. They are, unfortunately, the only routines that I have ever written that I would dare to make such remarks about. What are they? On the face of it they are routines that 'do nothing at all', but, with a bit of care they can be put to very good effect. The first subroutine, written in Amiga BASIC is a classic:

```
REM ==========
REM A-DO-NOTHING-SUBROUTINE
REM ----------
IGNORE: RETURN
REM ==========
```

Without the REMarks it consists of the single RETURN instruction. Let's give you a simple example of its use..... you may, during some stage of the development of a particular program provide a screenful of 'options' and ask the user to select an 'option number'. On the basis of that option number the program may then use a particular subroutine to carry out the required operation. The code in question would most likely be based on a type of arrangement such as the following:

```
COLLECT: INPUT "Please enter required Option Number";selection IF (selection >0 AND selection <6) THEN ON selection GOSUB A, B, C, D, E
```

where A, B, C, D and E are the subroutines that perform the processing related to the five possible options. At times you may have some of these options which are non-operational (e.g. the program may be in the development stage or you may just be planning for further program expansion at a later date.) Suppose that you wish to prevent subroutine C from being used in the option selection procedure. You could rewrite the conditions in the above example as .....

```
COLLECT: INPUT "Please enter required Option Number";selection IF (selection >0 AND selection <3) OR (selection >3 AND selection <6) THEN ...
```

but a much tidier alternative is just to replace the reference to subroutine C with a reference to a subroutine that does NOTHING, i.e. like this.....

```
COLLECT: INPUT "Please enter required Option Number";selection IF (selection >0 AND selection <6) THEN ON selection GOSUB A, B, IGNORE, D, E
```

The approach is quite useful when you have a large number of option numbers not all of which correspond to implemented routines. One typical concrete example is the detection of 'control characters', i.e. characters whose ASCII codes are <32. On the basis of such codes you may wish to perform various actions by calling some appropriate subroutines. It is more than likely that you will not want to use every control character so there will be gaps in the numerical sequence which will make verification a bit untidy. Let us suppose for instance that, in some program or other, you are using control codes to specify the actions outlined below:

Control character	Decimal equivalent	Operation to be performed	Subroutine label
control-P	16 =	switch on/off printer	P
control-D	4 =	switch on/off display	D
control-K	11 =	kill current working file	K
control-F	6 =	find specified file	F
control-S	19 =	save specified file	S
control-T	20 =	display current time	T

To write IF-THEN-ELSE type code for selecting these items out of thirty two control codes is easy enough but it has two drawbacks: firstly the code itself looks 'messy', and secondly the code is awkward to change. Both of these disadvantages are solved by using a subroutine which does nothing at all !

Firstly we create an ON-GOSUB line consisting of thirty two 'do- nothing' subroutines. In the following examples I've split the single line into five pieces for clarity - but do not forget that in a runable program these constitute a single line.....

```
REM Have ASCII code of character present in X$
REM label line 1..... control codes 0-7
REM label line 2..... control codes 8-15
REM label line 3..... control codes 16-23
REM label line 4..... control codes 24-31
IF ASC(X$)<32 THEN ON ASC(X$) GOSUB
IGNORE, IGNORE, IGNORE, IGNORE, IGNORE, IGNORE, IGNORE, IGNORE
IGNORE, IGNORE, IGNORE, IGNORE, IGNORE, IGNORE, IGNORE, IGNORE
IGNORE, IGNORE, IGNORE, IGNORE, IGNORE, IGNORE, IGNORE, IGNORE
IGNORE, IGNORE, IGNORE, IGNORE, IGNORE, IGNORE, IGNORE, IGNORE
```

Now all we need to do is to fill in the subroutine addresses that correspond to useful actions. All of the other possible responses will simply reference the subroutine which does nothing. In this way we can safely ignore all control codes that are not being implemented by using code such as the following.....

```
IF ASC(X$)<32 THEN ON ASC(X$) GOSUB
IGNORE, IGNORE, IGNORE, IGNORE, D, IGNORE, F, IGNORE
IGNORE, IGNORE, IGNORE, K, IGNORE, IGNORE, IGNORE, IGNORE P,
IGNORE, IGNORE, S, T,
IGNORE, IGNORE, IGNORE
IGNORE, IGNORE, IGNORE, IGNORE, IGNORE, IGNORE, IGNORE, IGNORE
```

With this arrangement it is possible to add and remove facilities very easily indeed. If we decide to implement another control character function we just place the new subroutine label into the appropriate position in the ON-GOSUB label list. Used with Amiga Basic's ON MENU GOSUB statements the approach allows you to create a finished menu even though you may not have implemented all of the possible options which you describe !

Here is another example (especially for the 'techies') which concerns the collection of MIDI messages from the Amiga's serial port. The first byte of a MIDI message identifies the message type and it is this 'header' which lets you decide what to do with the data that follows. When you write a program which reads MIDI information you are unlikely to implement all possible message handling facilities to start with - so

SUBROUTINES

you will receive some classes of messages which must be discarded. The solution? A commonly adopted trick is to use an address table which contains subroutines appropriate to every message class. Every time a new message is received the table uses the first byte of the message (called the status byte) to select an appropriate routine. All messages types which are not currently implemented are just passed to a subroutine which doesn't do anything. Here is a fragment from a typical 68K source code which looks only for SYSTEX (system exclusive messages), EOX(end of system exclusive) and STOP messages.....

```
*
* This is the 'folded' address table which enables us to access
* routines based on the VALUE of the MIDI byte. The FIRST entry
* is used as a data byte indirection vector.
INDIRECTION_TABLE dc.l error  soak (table NEVER see data-
                  soak rts a 'DO NOTHING' Subroutine
*
dc.l soak,soak,soak,soak,soak,soak,soak,soak,soak,soak
dc.l soak,soak,soak,soak,soak,soak,soak,soak,soak,soak
dc.l soak,soak,soak,soak,soak,soak,soak,soak,soak,soak
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dc.l soak,soak,soak,soak,soak,soak,soak,soak,soak,soak
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*
```

So there we are.... two examples of subroutines which do absolutely nothing at all ! You can do similar types of things with all computer languages and often to good effect. So next time someone shows you a routine that 'does nothing' look at it very, very carefully - it may be more useful than you think.

S.M.

Déjà vu?

Mark Smiddy reviews the recently updated version of Arnor's excellent word processor, Protext v4.2

When I first reviewed Protext for the Amiga, I declared it was, in my opinion the best word processor available at the price. At the time this caused a few gasps of apprehension from some of my learned colleagues, but nevertheless I stick by my original conclusion. Protext is a word processor and does not pretend to be anything else; it is not, and never has been a document processor.

Just to set the record straight, let me explain the differences as I see them: a word processor is a piece of software used to write text files. Among its features I would expect to find on-screen justification and word wrap, a spelling checker, possibly even a rudimentary mail merge. A thesaurus would be nice, too, although it is not essential.

On the other hand, a document processor has most of the features of the word processor plus the ability to load different fonts and styles, even graphics. Therefore, document processors are one step below full-blow desktop publishing systems, and are by definition not word processors although they often share some similarities.

Protext, which has now reached version 4.2, has changed quite dramatically since the first Amiga versions were released. Perhaps most importantly, the completely revised and rewritten manual is now available. This has a much improved index and covers all versions of the software highlighting any slight differences. Existing owners will be pleased to hear the few niggling bugs, such as the background printing problem, have been fixed. Amiga 500 owners can also now take advantage of the new version of Protext 500 which is somewhat smaller that its predecessor as a result of some "code restructuring."

Several new features have now appeared in version 4.2. These include an on screen clock, which is driven from the Amiga's system clock on the A501. Protext 500 also features the clock, but it has to be set externally by the Preferences program, which is not supplied. Tied to this feature are two new macros for automatically including the time and date in a piece of text.

Another new feature worth note is the Spell checking whilst typing. This option can now be switched on and off at any time, as opposed to being set in the configuration. However, a dubious spelling still causes a screen flash.

"As for the future, Protext looks unlikely to stand for very long."

Surely some sort of audible warning (like the PC version) would be better for slow typists who need to watch the keyboard. Also, paged scrolling can now be switched on or off as required; this allows you to preview long text files very quickly without having to constantly press a key.

The last major change is to the printer drivers. The language used has changed slightly and the new drivers no longer have to be compiled before use. This speeds the process of editing/creating new drivers for unusual printers.

As for the future, Protext looks unlikely to stand still for very long. The latest news is that a talking version will be available very soon (for the Amiga only, of course). Although still under development, the new product looks set to be a real aid to partially sighted and possibly even blind typists! By setting particular options, Protext can say each letter/word as it is typed and even read sentences, paragraphs or whole documents at the click of a mouse.

Finally, Protext also looks set to get a Thesaurus. In a virtually unprecedented move, Kuma Computers are working closely with Arnor to produce a Protext compatible version of their excellent K-Roget. Although it is likely K-Roget will need a 1Mb machine and 2 drives to work, it will add to Protext (and other Amiga word processors) a much-needed thesaurus of over 150,000 words and phrases, plus a fast phonetic spelling checker. The even better news is the price of K-Roget looks set to be reduced by £20, to £29.95, bringing it within reach of more users.

All this, coupled with the timely release of Protext Office and Protext Filer, (applications written in the Protext mail merge language) make Protext the word processor for everyone. This further supports my firm belief that it remains the best value for money in word processing on the Amiga. ***M.S.***

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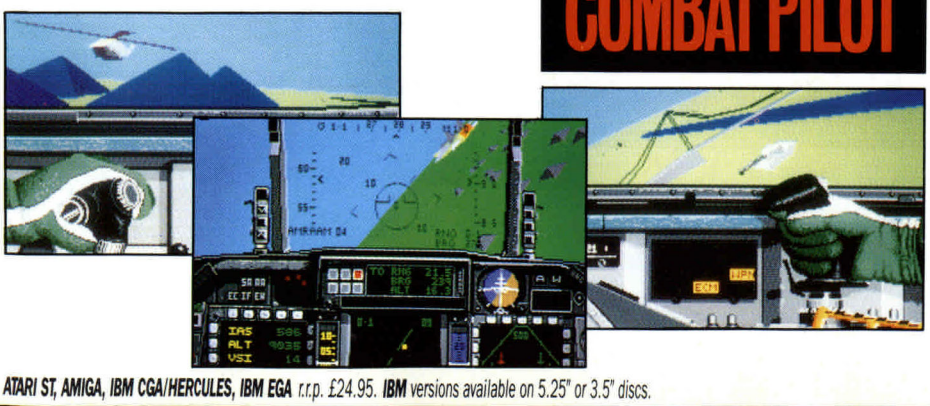
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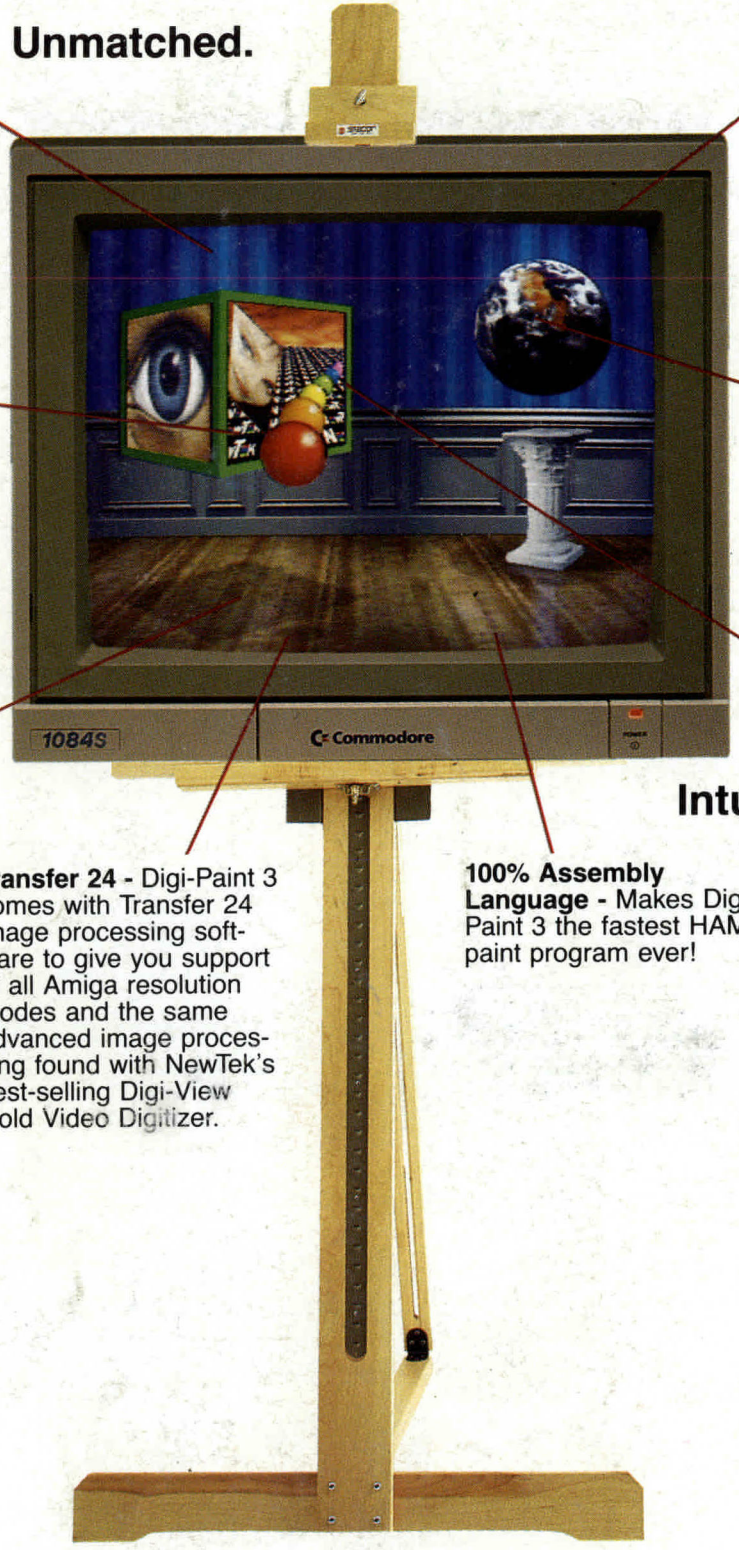
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